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GERONTOLOGY OF FLORIDA ENTOMOLOGISTS[1]

IRWIN H. GILBERT
Entomology Research Division, Agr. Res. Serv., U.S.D.A.

The word "gerontology," as the word "entomology," is not in the vocabulary of the average person. Webster defines it as the "scientific study of the phenomena of old age." This paper does not directly deal with old age, but discusses the economic aspects of Florida entomologists leading up to retirement and the economic and social readjustments after retirement.

To give a little insight on the span of a man's life I will quote from Mr. William B. Stark's minutes of an address of Dr. Robert H. H. Goheen presented at the University Club of Winter Park on December 5, 1953. "Since the time of Benjamin Franklin the span of human life in this country has about doubled. That seems to be a cause for rejoicing; nevertheless it introduces some very serious problems. In earlier times, in China for example and among the Hebrews, there was great respect for old men. Cicero asserted that, while physical strength declines with age, wisdom is not impaired. The population of this country has doubled in sixty years, but the number of people over 65 years of age has quadrupled. The life span is steadily rising and may mount to a hundred years by the year 2000."

What is the life expectancy of a Florida entomologist? My insurance agent has stated the life expectancy of an entomologist is a year or so longer than the average. Florida living also slightly extends man's life. For this paper I have used the expectation of life of white males in 1955 from tables prepared by the U. S. Public Health Service. The life expectancy is different for each age group, and increases as each year with its hazards is successfully passed. Thus an entomologist 25 years of age can expect to live 45.5 years, or to reach the age of 70. One retiring at 55 can anticipate 19.4 years of enjoyable living, until he is almost 75. If he decides to work until he is 65, only 13 years of retirement will be expected. At 70, the average retirement time is about ten years or about half as long as that of the man who retired at 55.

Let us take a look at the economic status of Florida entomologists before and after retirement. After a survey of the salaries of the various groups of entomologists of this State, I have concluded that the State workers—with educational institutions, experiment stations, the Plant Board, and Health Department—receive about the same or slightly less monetary returns than the Federal Civil Service workers. Entomologists of the Military Forces, which include officers of the U. S. Public Health Service, and commercial technical entomologists receive from 20 to 25 percent more net income than the other groups. As an example, Captains or Lieutenant Colonels of the Army receive about 24 percent more net income than the Federal Civil Service personnel of equivalent grades. While their salaries are lower, they receive subsistence and rental allowances on which no income taxes are paid. Also they do not make life insurance and retirement contributions which the Civil Service and State workers do.

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[1] Presidential address delivered at the 41st annual meeting of the Florida Entomological Society, August 28-29, 1958, at Tampa, Florida.

There are a number of retirement systems in operation for employees of the State of Florida. For this paper I have used the latest systems which are compulsory for most of the employees. The rate of contributions is 6.25% for State workers and 6.5% for Federal workers. Members of the Armed Forces and of most of the commercial companies do not contribute to their retirement systems. Many commercial companies maintain an employee's stock investment policy which supplements their retirement stipends.

Retirement benefits of commercial entomologists vary from 1.5% to 2.0% of an average salary for each year of service. Some plans have additional returns for employees who join the company's staff when they are 40 to 50 years of age. Members of the Armed Forces receive 2.5% of their base pay (does not include subsistence and rental allowances) for each year of service at the time of retirement. The benefits of a State worker at age 60 are 2% of an average salary for each year of service credit. The average salary is based on an average of the highest 10 of the last 15 years of service. This is 60% for 30 years of service. The benefits of a Federal worker at age 60 are 1.5% for each of the first 5 years' service, 1.75% of the second 5 years, and 2.0% for each year thereafter or 56.25% for 30 years of service. To determine the benefits of the Federal worker, the percentage benefits is multiplied by an average salary—a yearly average of the highest 5 years' salary.

Members of the Armed Forces and most commercial men do not have their annuities reduced if they retire before the age 60. Military personnel must have 20 years of service. It is possible to retire at age 55 with reduced benefits, after 10 years of service for State employees and after 30 years for Federal employees. The annuities are cut 25% for the State and 5% for the Federal.

Let us make a comparison of the net income before and after retirement of a Lieutenant Colonel and of an entomologist of an equivalent grade of the Federal Civil Service. Both men retire at 60 years of age. For this and succeeding examples, the present income tax and salary schedules were used. I previously stated that before retirement the net income of the Army entomologist would be 23.6% more than the Civil Service entomologist. For about three years after retirement the civil servant would not pay income taxes on his benefits, but still the Army man would receive 3.3% more income than the civilian. For the next two years the military man would receive about 20% more, or 9.3% for the first five years of retirement. For the succeeding years the military officer would receive a little over a thousand dollars a year more than the civilian, or 19.4%.

When is the best time to retire? This is a problem which each individual must decide for himself. A Federal Civil Service entomologist with 40 years of service would receive a net income of only 4.5% more if he continued to work than if he retired. This difference would increase to 22% after the retired individual had received an amount in retirement equal to his contributions to the retirement fund. For example, consider two men, 65 years of age, of the same grade and with 40 years of service, one retired and the other continuing to work. The latter would receive 9% more income than the other during a normal life expectancy.

To cite a similar example of three men, age 60, life expectancy of 16 years, and 30 years of service, one retires at 60, another at 65, and the

other at 70. The man retiring at 70 would receive about 32% more total net income for the 16 years than the man retiring at 60 and about 13% more than the one retiring at 65. The entomologist retiring at 65 would receive 22% more than the one retiring at 60. However, you may think the 60-year-old can enjoy his income of 32% less during his 16 years of retirement more than the 70-year can enjoy his 32% more for his ten years of work and six years of retirement.

Dr. Goheen also stated that "the change from an active working life to a state of unemployment, the onset of chronic illness, and personality changes which may make the old person 'difficult' to get along with, all contribute to the possibility of retirement life becoming a cause of unhappiness." A retired Army Colonel made the following observation to four other retired professional men where I was present: "It looks to me that men who retire in their early 60's enjoy retirement much more than those who retire in their late 60's."

What to do with the increased leisure time? Many will want to catch up with their fishing, hunting, and golf which they have neglected in the past 10 or 20 years. Some will expand their field of operations to get greater variations in these sports. I am sure many will travel to those places they have wanted to visit all their lives and much more time will be spent in planning such trips. I know of a lawyer who before making a three-month trip spends six months to a year studying the languages and customs of the places he plans to visit.

Some entomologists will want to pick up and continue working in a specialized field which they have had to drop because of administrative duties or research programs which required all their time. Recently I had breakfast with two entomologists who plan, when they retire, to work over unpublished biological and taxonomic papers which they have had in their files for ten or more years.

During retirement one can develop a real unalloyed program of research. Several years ago, a retired Federal entomologist living in Texas remarked that he was having "the time of his life" with a research program of developing native plants for livestock feed. He stated that he did not have to write up a protocol of the program, get it approved, worry about the money being available, the statistical design of his tests, and be bothered about it being discontinued if the research was not productive. The reports could be written and used as he wanted them and not as required.

The retired life of Professor Herbert Osborn, the Master Teacher of Entomologists, is another example of a real unalloyed entomological program. While in his 70's before leaving the University for the winter in Florida, he outlined his programs of study and pointed out the progress in each to another professor. The purpose was to leave the research completed if he did not return. After he was 80 these practices were discontinued because he knew he would return to complete his various programs.

Some may use much of their leisure time to keep their lawns, gardens, and homes in show-place condition. A retired engineer told me that he wouldn't install a lawn sprinkling system because of the great pleasure he derived from moving the hoses and pulling of weeds at sprinkling time in other areas of his yard.

A wise use of one's hobby will make leisure time fly. A few examples are: a university history professor who is now an outstanding amateur

geologist, a civil engineer who has published a two-volume treatise on the "dime novel," a university dean who has published books on the genealogy of three families.

Another example is the University Club of Winter Park which has and is being enjoyed by retired entomologists and men of other professions. The University Club is a non-profit corporation whose primary purpose is to provide the stimulus afforded by association with men of intellectual tastes and varied experience. Men who have retired from active business and professional life are in the majority, but an increasing number of younger men find the club attractive. Ages now range from 24 to 95. Range of origin and of occupation is equally great. Natives of almost every State in the Union and of 24 foreign countries are included. About 270 colleges and universities are represented. Professional and business experience covers almost every important field. Many of the members have attained eminence—about 20% are listed in Who's Who or American Men of Science.

Twenty college men conceived the idea of a University Club for mutual acquaintance and exchange of ideas and experience. New members have been received at almost every business meeting. There are now over 860 members. The cost of membership is kept low so that no qualified man, whatever his financial status, need be excluded. Contributions in addition to dues from members who are able and willing to help in support of the club are a necessary part of the financial plan.

The internal activities of the club, those conducted for the benefit of the members, include (1) regular meetings on alternate Saturday evenings at which members dine together, transact club business, and listen to addresses by distinguished speakers; (2) "pow-wows" on two afternoons a week when speakers, usually members, present subjects of which they have special knowledge, with a following period of questions and discussion; (3) group meetings for members with common interests.

The external activities, giving service to others, include Student Aid Fund, College Scholarship Committee, promoting improvement of conditions for the negroes of the community, conducting open meetings such as forums and lectures for the benefit of the public, and permitting use of the Club's facilities by civic and social service organizations.

While enjoying and profiting by our associations with one another we aim to make the club an asset to the community.

In conclusion I would like to say that the retirement years of a Florida entomologist should be a very happy period of his life. He will have sufficient funds for the necessities of life as food, shelter, clothing, and normal medical expenses. In addition he will be able to do those things which he has had a great desire to do all his life. Because he is a scientist and has above the normal amount of curiosity, he will have no difficulty in finding things to do. He should occupy his leisure time with great enjoyment.

NEW DISTRIBUTIONAL RECORDS FOR FLORIDA MOSQUITOES [1]

NINA BRANCH,[2] LUCILE LOGAN,[3] ELISABETH C. BECK [3] AND J. A. MULRENNAN [4]

During the course of a continuing light trap surveillance program conducted by the Florida State Board of Health, some new and unpublished distributional records for Florida mosquitoes have accumulated. These are presented herein mainly as a contribution to the more precise delimitation of the many mosquito species whose continental distributions may have their northern or southern limits in the state of Florida.

Occasionally, records used will have been taken from publications or from other sources as well as light traps, and reviewing these together with a consideration of increased traffic during and since the war years, it should be noted that various modes of transport could account for some species having been captured beyond their apparent natural range in the state, such as, for instance, *Culex tarsalis* in Dade County, *Psorophora cyanescens* in Hendry County and *Deinocerites cancer* in Lake County. As this paper will deal mainly with light trap records, the symbol (LT) will be used for all such collections; the few others will be designated explicitly. Twenty-five species comprise the following annotated list.

The authors wish to express appreciation to Dr. M. W. Provost, Director, Entomological Research Center, Vero Beach, for helpful advice, and to Dr. John Porter of the U. S. Quarantine Station, Miami Beach, for permission to use light trap data from Fisher Island (*Aedes tortilis, Culex tarsalis*) and Vaca Key (*Mansonia titillans*).

NEW STATE RECORD

Wyeomyia (*Wyeomyia*) *haynei* Dodge

Larvae of *W. haynei* were collected from *Sarracenia purpurea* at Eleven Mile Creek in Escambia County by Wm. Beck, Jr., in July, 1956. Four larvae and four adults, reared from this collection, were verified as *W. haynei* by Dr. Alan Stone of the U. S. National Museum. Larvae collected at the same locality, April 13, 1950, were rechecked and found to be *W. haynei* and not *W. smithii* as previously identified, thus invalidating the *W. smithii* record (unpublished) for Florida.

NEW COUNTY RECORDS

Anopheles (*Nyssorhynchus*) *albimanus* Wiedemann

Following 1904 when 131 adult specimens of *A. albimanus* were collected by Dr. G. N. MacDonell at Key West, this species was observed in Florida

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in only rare instances (Pritchard *et al.*, 1946) until an extensive mosquito survey was inaugurated on the Keys. From 1946 through 1950, *A. albimanus* was taken in considerable numbers in State Board of Health light traps in Monroe County from Stock Island, near the southern tip, to Key Largo, a distance of approximately 100 miles. Since that time, only sporadic captures have been made in this area. The following report will be concerned only with records from Monroe County where *A. albimanus* is autochthonous; the occasional finding of this species in Dade County is assumed to follow chance introduction from foreign ports (Pritchard *et al.*, 1946).

Monroe (LT) 1946: 34 ♀♀, Stock Island. 1947: 9 ♀♀, Stock Island; 1 ♀, Upper Matecumbe Key. 1948: 1 ♂, 702 ♀♀, Big Pine Key; 1 ♀, Key Largo. 1949: 1 ♂, 164 ♀♀, Big Pine Key; 3 ♀♀, Stock Island. 1950: 17 ♀♀, Big Pine Key; 17 ♀♀, Key Largo; 7 ♀♀, Lower Matecumbe Key; 5 ♀♀, Upper Matecumbe Key; 5 ♀♀, Crawl Key; 2 ♀♀, Vaca Key. 1951: 1 ♀, Big Pine Key; 1 ♀, Vaca Key. 1954: 2 ♀♀, Big Pine Key; 2 ♀♀, Upper Matecumbe Key. 1955: 1 ♀, Big Pine Key; 1 ♀, Upper Matecumbe Key; 1 ♀, Key Largo. 1957 (first nine months): 7 ♀♀, Big Pine Key.

Anopheles (*Anopheles*) *barberi* Coquillett

The early records of King *et al.* (1939) list *A. barberi* as occurring in Florida at Gainesville, Alachua County, and Tallahassee, Leon County. More recently, during a fourteen year period, this rare tree-hole breeding anopheline has been taken in Florida in a varity of localities and by various methods; three larvae and seventeen adults comprise the total known capture. Carpenter and Chamberlain (1946) report the capture of three adults in 1943 from Jackson, Bay, and Palm Beach Counties. State Board of Health records report the collection of this species by light trap, truck trap, from natural resting places, and as larvae, in three additional counties, and a recapture in Jackson County.

Escambia (Natural Resting Place) 1942: (monthly totals) July 1 ♂ 2 ♀♀, August 1 ♂ 2 ♀♀, September 2 ♀♀, October 1 ♀, November 1 ♀, Ellyson Field, Pensacola. *Duval* (Larvae) 1943: 14 October 3 L, Cecil Field, Jacksonville. *Hendry* (LT) 1945: 12 June 1 ♀, 16 June 2 ♀♀, Clewiston. *Jackson* (Truck Trap) 1955: 31 May 1 ♂, Marianna.

Mansonia (*Mansonia*) *indubitans* Dyar and Shannon

Since publication by Pratt (1945) of *M. indubitans* as a newly observed mosquito addition to the fauna of the United States, this species has been found to have widespread distribution in Florida, ranging from Monroe County at the southern tip of the state northward from coast to coast to the state boundary; westward it follows the Gulf coast to the boundary county of Escambia. Although abundant in most sections of the state, collections grow relatively more sparse in far-north localities. Captures by State Board of Health light traps have been made in 42 counties. In the 11 northern counties listed below, numbers in parentheses will indicate the number of times this species has been collected in each county, evidencing its scarcity.

St. Johns (3), *Duval* (8), *Baker* (1), *Taylor* (1), *Leon* (1), *Franklin* (1), *Gadsden* (1), *Jackson* (1), *Bay* (1), *Walton* (1), *Escambia* (3).

Mansonia (*Mansonia*) *titillans* (Walker)

Distribution records compiled before 1945 for *M. titillans* may be misleading since *M. indubitans* had not been described as a separate species in North America before that time (Pratt, 1945), thus in some instances assigning to *M. titillans* an unwarranted northern distributional range. Actually, *M. titillans* has a limited range in Florida, occupying an area which can be defined as the southern half of the Peninsula, below a line drawn between Titusville on the Atlantic coast and Sarasota on the Gulf coast. This species has been taken by State Board of Health light traps in the east coast counties of Dade, Broward, Palm Beach, Martin, St. Lucie, Indian River, and Brevard, in the neighboring inland counties of Hendry and Okeechobee, and on the Gulf Coast in Lee County. Chamberlain and Duffey (1945) report *M. titillans* from Highlands County as well as from Palm Beach and Martin Counties, Miles and Rings (1946) from Sarasota County, and unpublished U. S. Quarantine Station records contain the report of a female captured by light trap in July, 1947, on Vaca Key, Monroe County. State Board of Health county records follow.

Brevard (LT) 1947: 2 August 1 ♀, Titusville. *Broward* (LT) 1948: 22 June 2 ♀♀, Ft. Lauderdale. *St. Lucie* (LT) 1950: 9 October 1 ♀, Ft. Pierce. *Dade* (LT) 1951: 4 October 1 ♀, Biscayne Key. *Hendry* (LT) 1953: 19 June 1 ♀, Clewiston. *Indian River* (LT) 1954: 24 September 1 ♀, Vero Beach. *Okeechobee* (LT) 1954: 10 August 2 ♀♀, Okeechobee. *Lee* (LT) 1955: 11 August 1 ♀, Ft. Myers.

Psorophora (*Janthinosoma*) *cyanescens* (Colquillett)

A state record was established for *P. cyanescens* in Florida when an adult was captured in June, 1943, at Drew Field, Hillsborough County (Carpenter and Chamberlain, 1946). A second adult was taken by light trap, September 18, 1944, at Tyndall Field, Bay County (Carpenter *et al.*, 1945), and a third on July 18, 1945, at Dale Mabry Field, Leon County (Miles and Rings, 1946). MCWA light trap records for Florida (unpublished) accounted for an earlier capture of a female in Leon County, August 1, 1944, at Dale Mabry Field, and one female, October 26, 1945, at Clewiston, Hendry County. Although the State Board of Health has had light traps operating in no less than five northern counties as well as elsewhere in the state since that time, no further records of *P. cyanescens* were noted until July 14, 1953, when a female was taken at the Jim Woodruff Dam in Jackson County where the species has since been captured in considerable numbers. In later years, with light traps operating in 17 northern counties, sparse captures have been reported from Okaloosa, Gadsden, Union and Suwannee Counties only; light traps in peninsular counties have remained negative for the species.

Okaloosa (LT) 1954: 23 July 1 ♀, Laurel Hill. 1955: 26 April 1 ♀, Laurel Hill. *Gadsden* (LT) 1954: 31 August 1 ♀, Chattahoochee. 1956: 17 July 1 ♀, Chattahoochee. *Union* (LT) 1955: 23 August 2 ♀♀; 16 September 1 ♀; Raiford. *Suwannee* (LT) 1956: 11 September 1 ♂, Live Oak.

Psorophora (*Janthinosoma*) *horrida* (Dyar and Knab)

P. horrida was first recorded from Florida in 1945 when three males were captured by light trap in Jackson County (Miles and Rings, 1946). Since that time only one capture has been recorded from State Board of Health light traps, a female in 1955, again in Jackson County. These four captures constitute the present known records for this species in the state.

Jackson (LT) 1945: 28 May 3 ♂♂, Army Air Force, Marianna. 1955: 12 May 1 ♀, Marianna.

Psorophora (*Grabhamia*) *pygmaea* (Theobald)

P. pygmaea, which was first recorded in the United States from Monroe County in 1901, again in 1903 and 1924, and from Dade County in 1946, (Buren, 1946) has been taken regularly in State Board of Health light traps in these two counties since 1949. To the north of this established range, it was captured in Palm Beach, Martin and St. Lucie Counties in 1954 only and not since.

St. Lucie (LT) 1954: 15 April 4 ♀♀; 19, 2 ♀♀; 26, 1 ♀; 29, 1 ♀; Ft. Pierce. *Martin* (LT) 1954: 20 April 1 ♀, Sewall's Point. *Palm Beach* (LT) 1954: 25 May 1 ♀, Boca Raton.

Aedes (*Ochlerotatus*) *atlanticus* Dyar and Knab

All State Board of Health records for *A. atlanticus* in Florida are based on males only since the females cannot be separated with certainty from those of *A. tormentor.* However, since verified males have been found in 50 of Florida's 67 counties, this species may be said to have state-wide distribution. It has been taken by light trap from the Keys in Monroe County to the state's northern boundary, and westward to Escambia County, overlapping entirely the area where the less common *A. tormentor* is found.

Aedes (*Ochlerotatus*) *tormentor* Dyar and Knab

State Board of Health records for *A. tormentor* are based on determinations of larvae or of hypopygial characters only. This uncommon species has been taken mainly in the northern sections of the state. In one instance it was captured in inland peninsular Marion County. The entire record is given.

Escambia (LT) 1942: 22 September 1 ♂, Pensacola. *St. Johns* (Larvae) 1948: 4 April 3 L, Palm Valley. *Nassau* (LT) 1948: 12 April 1 ♂, Ft. Clinch. *Marion* (LT) 1950: 15 September 3 ♂♂, McIntosh. *Wakulla* (LT) 1953: 2 September 1 ♂, Panacea. 1957: 22 June 1 ♂, Panacea. *Jackson* (LT) 1954: 16 April 1 ♂, Jim Woodruff Dam, Sneads. (Truck Trap) 1955: 3 June 1 ♂, 11 June 2 ♂♂, 13 June 1 ♂, Marianna. *Taylor* (LT) 1956: 16 October 1 ♂, Steinhatchee.

Aedes (*Ochlerotatus*) *thelcter* Dyar

At the time Thurman *et al.* (1949) noted the occurrence of *A. thelcter* in the Florida Keys, it had been recorded from four localities in Monroe County: Key West, Vaca Key, Long Key and Key Largo, all in 1946 and

1947. Only three females of this rare mosquito have since been taken by State Board of Health light traps, adding two new localities for the species.

Monroe (LT) 1948: 20 July 1 ♀, Big Coppitt Key. 1950: 14 October 1 ♀, Crawl Key No. 1. 1952: 25 July 1 ♀, Vaca Key.

Aedes (*Ochlerotatus*) *thibaulti* Dyar and Knab

A. thibaulti was first recorded in Florida by Middlekauff and Carpenter (1944) when they reported the capture by light trap of a male on April 7, 1943, at the Marianna Army Air Base, Jackson County. A subsequent single capture of this rare species was made during a sampling technique experiment conducted by the State Board of Health in 1955.

Jackson 1955: (Truck Trap) 7 May 1 ♂, Marianna.

Aedes (*Ochlerotatus*) *tortilis* (Theobald)

The first record for *A. tortilis* in the United States was based on a female taken by light trap, August 28, 1945, on Key West Island; later in the same year it was reported from three new areas in the county, Vaca Key, Cudjoe Key, and Stock Island; and in October, 1945, a male was captured by light trap at Clewiston in Hendry County (Pritchard *et al.*, 1947). Between 1947 and 1950, *A. tortilis* was reported from State Board of Health light traps in several additional localities in Monroe County—Key Largo, Upper Matecumbe Key, Lower Matecumbe Key, Crawl Keys, and Big Pine Key—while Thurman *et al.* (1949) report on larvae of the species from Long Key. Captures from Palm Beach County were made in 1946 and 1947, and from Dade County, Fisher Island, in 1949 and 1952.

Palm Beach (LT) 1946: 27 and 29 May 1 ♂ each, Jupiter. 1947: 18 July 2 ♂♂, 1 ♀, Belle Glade. *Dade* (LT) 1949: 9 and 14 October 1 ♀ each, Fisher Island. 1952: (monthly totals) September, 5 ♂♂, 18 ♀♀; October, 12 ♀♀, Fisher Island.

Aedes (*Aedes*) *cinereus* Meigen

This rare Florida species was first reported for the state by Carpenter *et al.* (1945) with the capture by light trap of two males at the Marianna Army Air Base in Jackson County, October 2, 1944. Additional captures have been made by State Board of Health entomologists in 1948 and 1955.

Jackson 1948: (LT) 23 July 7 ♀♀; 24 July 2 ♂♂, 4 ♀♀; Caverns State Park. 1955: (Truck Trap) 15 June 1 ♂, Marianna.

Aedes (*Aedimorphus*) *vexans* (Meigen)

A. vexans has been taken by State Board of Health light traps in 51 counties in the state, occurring most frequently in the northwest and northern sections, growing relatively more sparse in the central and southern areas. This species has been recorded once from Monroe County and rarely from four other counties south of Lake Okeechobee, being found not at all in Dade and Broward County traps. The number of times specimens have been collected in each of the far-southern counties is given in parentheses.

Lee (13), *Collier* (3), *Hendry* (4), *Palm Beach* (7), *Broward* (0), *Dade* (0), *Monroe* (1).

Culex (*Culex*) *bahamensis* Dyar and Knab

C. bahamensis, which was first recorded from Florida in 1939 at Key West, Monroe County (Fisk, 1939), has since been found regularly in other localities on the Keys from Stock Island to Key Largo, light trap captures being frequent. A record was established for Dade County when one male was collected on Elliott Key in 1940 (King *et al.,* 1944). Subsequent State Board of Health light trap captures in this county, though sparse, have been made from such widespread localities as Key Biscayne, Fisher Island, Princeton, Homestead, Florida City and the Royal Palm Ranger Station in the Everglades National Park. Throughout the past five years two light traps have been in operation regularly in Broward County, yet, during that time, *C. bahamensis* was captured in one trap and in 1953 only, although abundantly, at the Gulf Stream Yacht Basin near Hallandale. The Broward County record and subsequent monthly captures are as follows.

Broward (LT) 1953: 12 May 6 ♀♀, Hallandale. Total monthly captures: May 2 ♂♂, 88 ♀♀; June 5 ♂♂, 363 ♀♀; July 1 ♂, 53 ♀♀; August 165 ♀♀; September 1 ♂, 20 ♀♀, Hallandale.

Culex (*Culex*) *tarsalis* Coquillett

The first published account of *C. tarsalis* in Florida contains the report of one female taken by light trap at Pensacola, Escambia County, September 29, 1942 (Bradley *et al.,* 1944), establishing a new state record. The later capture by light trap of one female each at Marianna Army Air Base, 1943 (Middlekauff and Carpenter, 1944), and Tyndall Field, 1944 (Carpenter, 1945), established new records for Jackson and Bay Counties respectively. Since that time, this mosquito has been collected occasionally throughout the state.

Leon (LT) 1943: 4 November 1 ♀, Tallahassee. *Dade* (LT) 1949: 24 June 1 ♀, Fisher Island. *Escambia* (LT) 1949: 1 and 19 December 1 ♀ each, Innerarity Point; 6 December 1 ♀, Santa Rosa Island. 1953: 28 September 1 ♀, Innerarity Point; 29 September 9 ♀♀, Santa Rosa Island. 1954: 19 October 1 ♀, Innerarity Point. *Pinellas* (LT) 1952: 10 October 1 ♀, Bellaire Beach. *Walton* (LT) 1953: 29 September 1 ♀, 30 October 1 ♀, Santa Rosa; 6 October 1 ♀, Grayton Beach. *Levy* (LT) 1953: 29 September 1 ♀, Cedar Keys. *Manatee* (LT) 1953: 1 October 1 ♀, Bradenton Beach. 1954: 23 November 1 ♀, Cortez. *Sarasota* (LT) 1953: 30 October 1 ♀, Nokomis.

Culex Subgenus *Melanoconion*

There are in Florida seven *Culex* (*Melanoconion*) species, of which one, *Culex mulrennani,* is apparently the only mosquito endemic to the state. *Culex erraticus, Culex pilosus* and *Culex peccator* have state-wide distribution, *C. erraticus* having been collected by State Board of Health entomologists as larvae or adult males in fifty counties, *C. pilosus* in forty-two, while the apparently less common *C. peccator* has been reported by King *et al.* (1944) from two counties, by Carpenter and Chamberlain (1946) from nine additional counties, and by State Board of Health personnel from seven additional counties. None of these workers reported *C. peccator* from

the Keys. The remaining *Melanoconion* species, along with *C. mulrennani,* have a more limited distribution and will be discussed separately.

Culex (*Melanoconion*) *atratus* Theobald

Culex atratus was first recorded from Florida by Roth and Young (1944) on the basis of the capture of a single male specimen by light trap on Boca Chica Key, Monroe County, in 1942. Pritchard *et al.* (1947) expanded its distribution by recording larval collections taken throughout the Keys as well as light trap captures on the mainland in Collier and Manatee Counties. Later captures by State Board of Health light traps are herewith reported from Lee and Dade Counties.

Lee (LT) 1947: 22 July 1 ♂, Sanibel Island. *Dade* (LT) 1947: 24 October 1 ♂, Princeton.

Culex (*Melanoconion*) *iolambdis* Dyar

Culex iolambdis, which was first recorded from Florida as *Culex* (*Melanoconion*) *elevator,* has been reported by Pratt and Seabrook (1952) as occurring in Monroe County at Key Largo, and in Martin and Palm Beach Counties. State Board of Health workers have made further collections of this species in both the Keys and mainland areas of Monroe County and additionally in Collier, Manatee, Lee and Dade Counties.

Collier (LT) 1946: 2 July 1 ♂, Marco Island. *Manatee* (LT) 1946: 17 September 1 ♂, Cortez. *Lee* (LT) 1946: 27 September 1 ♂, Pineland. *Dade* (LT) 1947: 28 October 1 ♂, Homestead.

Culex (*Melanoconion*) *mulrennani* Basham

The description of *C. mulrennani* as a new species from Florida (Basham, 1948) was based on seven males taken from limestone solution holes on Big Pine Key, and larvae collected on Big Pine, Cudjoe and Ramrod Keys. Although larval collections were obtained on the Keys from 1945 until 1950, wild-caught adults of *C. mulrennani* were not again observed until 1953.

Monroe (LT) 1953: 17 July 2 ♂ ♂, 6 October 1 ♂, Big Pine Key.

Culex (*Melanoconion*) *opisthopus* Komp

This mosquito was originally recorded from Florida at Ft. Lauderdale, Broward County, by Pratt *et al.* (1945), and later by Pritchard *et al.* (1947) who recorded its capture by light trap in Palm Beach and Charlotte Counties, and Monroe County on the mainland. Further captures have since been made in Brevard, Dade and Collier Counties.

Brevard (LT) 1947: 2 August 1 ♂, Mims. *Dade* (LT) 1949: 21 December 1 ♂, Royal Palm State Park. *Collier* (LT) 1954: 27 May 4 ♂ ♂, Collier-Seminole State Park.

Deinocerites cancer Theobald

D. cancer has been taken regularly for three years or more by light trap in the Atlantic coast counties from Monroe northward to Volusia. In five instances the species has been captured beyond this range; northward in

Flagler and St. Johns Counties on the east coast, inland in Lake County, and on the Gulf coast in Hernando and Sarasota Counties.

Lake (LT) 1948: 5 November 1 ♀; 1949: 18 May 1 ♀, Leesburg. *St. Johns* (LT) 1951: 11 September 1 ♀, Anastasia Island. *Flagler* (LT) 1955: 2 August 1 ♀, Flagler Beach. *Hernando* (LT) 1955: 2 September 1 ♀, Brooksville. *Sarasota* (LT) 1956: 27 July 1 ♀, Myakka River State Park.

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NOTICE OF 42nd ANNUAL MEETING OF THE FLORIDA ENTOMOLOGICAL SOCIETY

The Executive Committee of the Florida Entomological Society has selected Miami, Florida, as the location for the 1959 meeting to be held on September 10 and 11 at the McAllister Hotel.

The following committee assignments have been made by President Hunter so that plans for the meeting can be made well in advance.

PUBLICITY COMMITTEE: Dr. L. C. Kuitert (Chairman, 1958-59), 3 year term
Mr. W. B. Gresham, Jr., 2 year term
Dr. D. O. Wolfenbarger, 1 year term

PROGRAM COMMITTEE (1959 meetings): Dr. F. G. Butcher (Chairman)

LOCAL ARRANGEMENTS COMMITTEE (1959 meetings): Mr. John Porter (Chairman)

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CONCERNING *GERRIS* (*GERRISELLA*) POISSON AND A NEW GENUS FOR SOME NEW WORLD *GERRIS* SPECIES [1]

HERBERT B. HUNGERFORD AND RYUICHI MATSUDA

In 1940 Dr. Raymond Poisson described *Gerris settembrinoi* from Belgian Congo, and placed it in the new subgenus *Gerrisella*.[2] In our generic revision of the Gerridae we have had occasion to revaluate generic and subgeneric characters in the family. Through the kindness of Dr. A. Collart we have been privileged to study the types of this species preserved in the Royal Museum of Natural History of Belgium. Careful examination has indicated that the species in question does not belong to the genus *Gerris*, but represents a valid genus. *Gerris* (*Gerrisella*) *settembrinoi* Poisson thus is the type species of the genus *Gerrisella*, which we describe below.

There is no label on any specimen to mark it as holotype, allotype, or paratype. However, in the description by Poisson we find "Distribution : Congo belge, distr. Congo-Ubangi. 1 mâle et 1 femelle macroptères (types); 1 mâle et 1 femelle aptères sans rudiments élytraux: Kogbwa, 10 XII, 1935 (G. Settembrino) Mus. Roy. Hist. Nat. Belgique". Therefore it is clear that the macropterous male and female are the types in the sense of holotype and allotype, and that the apterous forms are paratypes, or more precisely morphotypes. We therefore place a lectotype label on the macropterous male.

Gerrisella Poisson

Figure 1, Figure 2 (A-D)

Head with eyes relatively large. Eyes prominent with inner margin greatly indented, thus head greatly widened posteriorly between eyes. Clypeus elevated, well defined on basal margin. Labrum slender and elongate. Antennae slender, first segment about as long as second and third segments together, second, third and fourth segments subequal in length. Rostrum with terminal segment on mesosternum.

Pronotum in apterous forms only feebly produced, with broadly rounded posterior margin; posterior margin of mesonotum rounded; metasternum about one fourth as long as mesosternum; omphalium present. Front leg moderately stout, without sexual difference in shape; femur distinctly longer than tibia; first tarsal segment greatly reduced. Middle leg much longer than hind leg; femur a little longer than tibia; first tarsal segment about three times as long as second. Hind leg with femur almost four times as long as tibia; first tarsal segment only slightly longer than second.

Abdomen without connexival spines in both sexes. Seventh segment longer than sixth in both sexes. Male without median emargination on ventral posterior margin of seventh segment; eighth segment greatly prolonged dorsally and with broadly rounded posterior margin; pygophore

[1] Contribution No. 1,002 from the Department of Entomology, University of Kansas. This report is a by-product of a project conducted with the aid of a grant from the National Science Foundation.

[2] Bulletin du Musée royal d'Histoire naturelle de Belgique. XVI No. 40, pp. 1-4, Figs. 1-3.

simply rounded on apical margin; paramere greatly reduced and hidden; suranal plate with ventrally directed lateral flaps (Poisson described these as "griffes génitales" in fig. 3, A, g 1940). Female with seventh segment much longer than sixth; eighth segment well exposed.

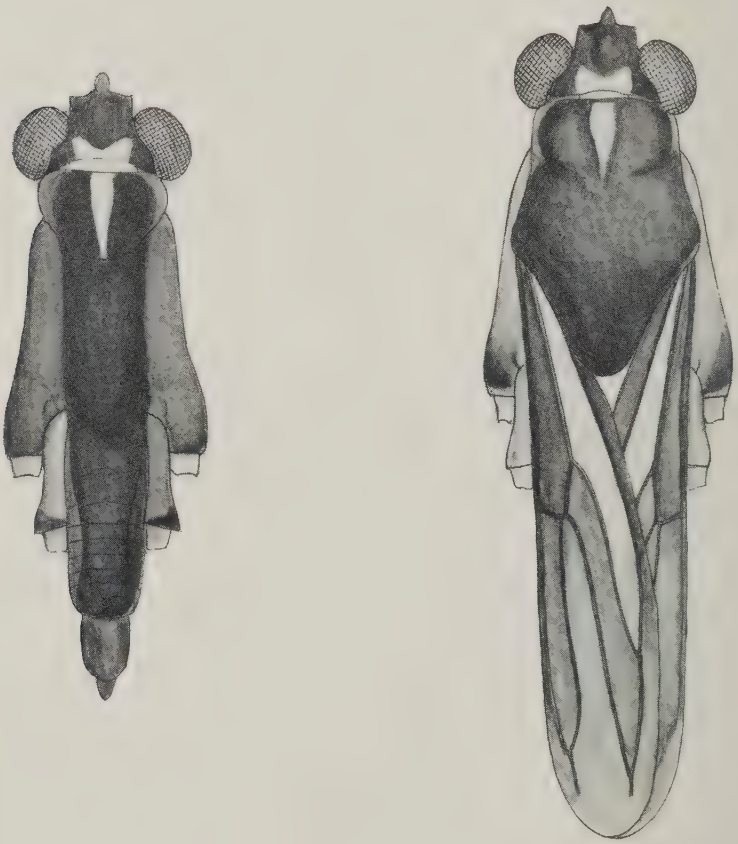

Figure 1.

Left, the wingless male of *Gerrisella settembrinoi* Poisson. Right, the winged male of the same species.

Macropterous Forms: Pronotum with humeri located at middle. Forewing with Subc.2 united with R+M at the point of branching into R and M.

The genus *Gerrisella* is distinguishable from *Gerris* in the following key characters:

1. The pronotum is only feebly prolonged in wingless forms in *Gerrisella*.

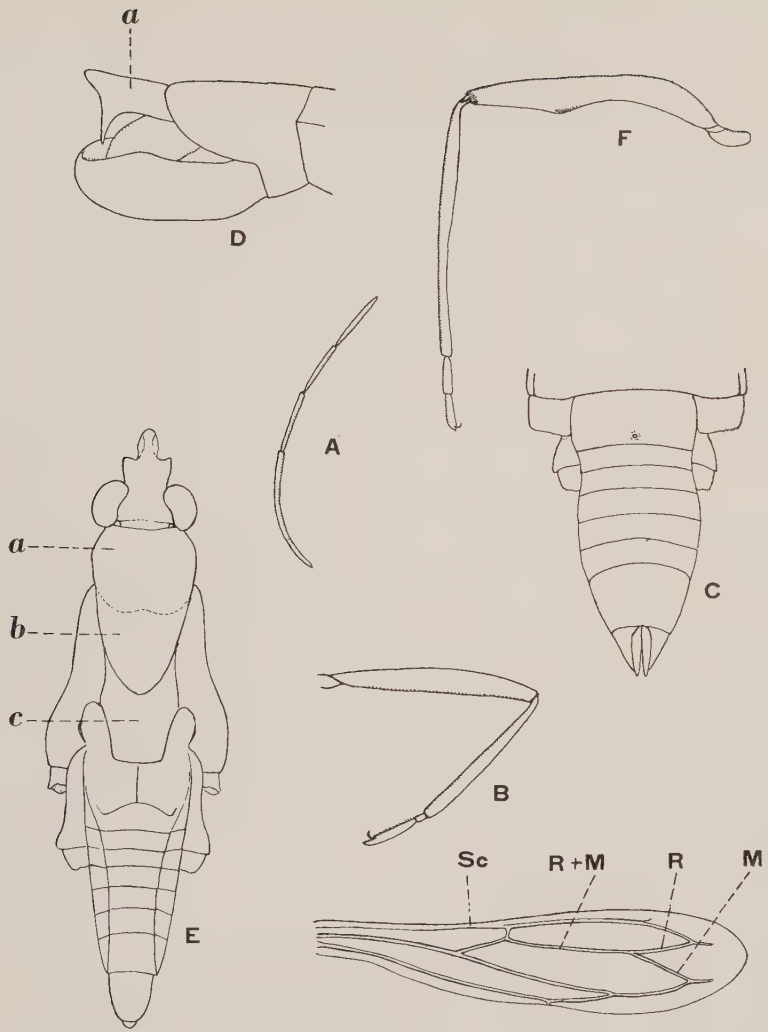

Figure 2.

A. *Gerrisella settembrinoi* Poisson, The male antenna.
B. *Gerrisella settembrinoi* Poisson, The female front leg.
C. *Gerrisella settembrinoi* Poisson, Ventral view of the female abdomen.
D. *Gerrisella settembrinoi* Poisson, Lateral view of the male apical abdominal segments. a, The suranal plate.
E. *Eurygerris fuscinervis* (Berg), a, The anterior lobe of the pronotum b, The posterior lobe of the pronotum c, The mesonotum.
F. *Eurygerris fuscinervis* (Berg), The male front leg.
G. *Eurygerris fuscinervis* (Berg), The right forewing, Sc. Subcosta. R + M, Radius plus Media. R, Radius. M, Media.

2. The hind tibia is about one-fourth as long as femur, while it is at least one half as long as femur in *Gerris*.

3. The lateral margin of the suranal plate in the male of *Gerrisella* is modified.

4. In macropterous forms the humeri are closer to the middle of the pronotum in *Gerrisella* than in *Gerris*.

In our study of the Western Hemisphere species assigned to *Gerris* there is one group of species which stands quite apart from all the others. This is apparent in the key to *Gerris* in "The Gerrinae of the Western Hemisphere" by C. J. Drake and H. M. Harris (1934)[3] and also in "Gerrinae in the University of Kansas Collection" by Louis C. Kuitert (1942)[4]. We propose for them:

Eurygerris gen. nov.

Type species of the genus : *Gerris fuscinervis* (Berg)

Figure 2 (E-G)

Body widened across mesoacetabula. Female considerably larger than male in most species.

Antennae with first segment longer than second, shorter than second and third together, second, third and fourth subequal in length. Pronotum in wingless forms not prolonged to posterior margin of mesonotum or, if it is, anterior lobe distinctly sutured off (*mexicanus* Champion). Sc_2 vein of forewing united with R+M before the point of branching into R and M respectively (except in an occasional *mexicanus*). Omphalium present. Male front femur strongly arched and depressed on inner margin basally; first tarsal segment as long as or only slightly longer than second. Middle leg with femur a little longer than tibia; tibia usually curved; first tarsal segment five to six times as long as second. Hind leg shorter than middle leg; femur much longer than tibia. Abdomen without connexival spines; seventh segment longer than sixth in both sexes. Pygophore simply rounded on apical margin. Paramere vestigial. Suranal plate simple.

To this genus belong the following species: *Eurygerris fuscinervis* (Berg), *E. mexicanus* Champion, *E. flavolineatus* Champion, *E. beieri* Drake and Harris, *E. cariniventris* Champion, *E. kahli* Drake and Harris, *E. summatus* Drake and Harris, and *E. carmelus* Drake and Harris.

Since *E. summatus* Drake and Harris is known only from females it is not mentioned in the published keys which are based upon males.

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[3] Annals of the Carnegie Museum XXIII, pp. 179-240.

[4] University of Kansas Science Bulletin XXVIII, pt. 1, No. 7, pp. 113-143, 1942.

A NEW APHID GENUS (HOMOPTERA : APHIDIDAE)[1]

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Insect Systematics and Biological Control Unit
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In recent years European aphid taxonomists have shown that the genus *Myzus* Pass., as it is still defined by North American workers, is composed of several distinct genera (Börner, 1952; Stroyan, 1954). There are, however, a number of species of *Myzus*-like aphids that appear to be indigenous to North America that cannot be assigned to any known genus. One of these groups is exemplified by *Myzus eriobotryae* Tissot which comprises the subject of this paper.

Hyalomyzus new genus

Type species: *Myzus eriobotryae* Tissot, 1935. Fla. Ent. 18: 40-52.

First-Instar Nymph.—Frontal tubercles well developed, scabrous. Antenna four-segmented; primary sensory lacking ciliated margins. Apical rostral segment with two setae in addition to usual three apical pairs. Dorsum of eighth abdominal segment with two or three setae. Tibiae lacking spicules. First segments of tarsi each with two setae.

Second-Instar Nymph.—Antenna five-segmented; primary sensoria with weakly ciliated margins. Hind tibiae spiculose. First segments of tarsi each with three setae. Otherwise like first-instar nymph.

Third-Instar Nymph.—Antenna six-segmented. Otherwise essentially like second-instar nymph.

Apterous Viviparous Female.—Frontal tubercles well developed, scabrous, converging. Disc of head nearly smooth (Fig. 2). Antenna about as long as body, strongly imbricated on anterior surface; primary sensoria with ciliated margins; secondary sensoria absent. Rostrum reaching just beyond second coxa; apical segment with two setae in addition to usual three apical pairs. First segments of tarsi each with three setae. Dorsum of abdomen sclerotic, very weakly pigmented, strongly wrinkled except on segments VII and VIII (Fig. 1). Cornicle swollen, with strong imbrications, longer than cauda. Cauda short, blunt, slightly constricted at middle, with two setae on each side. Short, blunt setae on antennae, dorsum of body, and dorsal surfaces of legs; pointed setae elsewhere.

Alate Viviparous Female.—Dorsum of head smooth. Third, fourth, and fifth antennal segments with many secondary sensoria distributed evenly over entire surfaces of segments. Medius of forewing two-branched. Dorsum of abdomen not strongly wrinkled, lacking pigmented sclerotic areas; lateral sclerites well developed, deeply pigmented.

Oviparous Female.—Hind tibia swollen, with sensoria on entire length. Otherwise essentially like apterous viviparous female.

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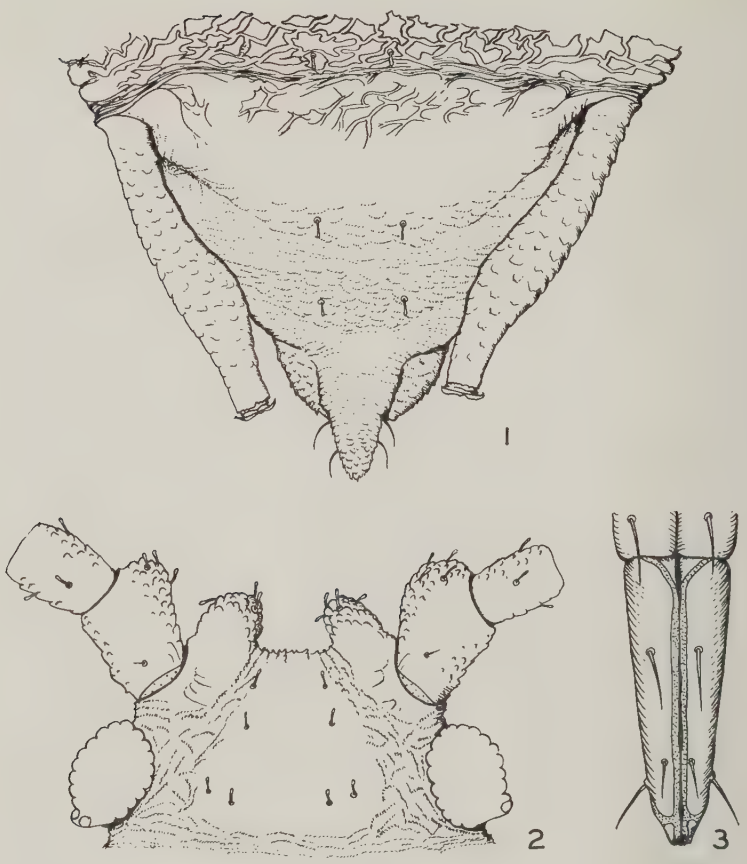
[1] Contribution No. 3812, Entomology Division, Science Service, Department of Agriculture, Ottawa.

[2] Associate Entomologist.



Figs. 1-3. Apterous viviparous female of *Hyalomyzus eriobotryae* (Tissot). 1, Apical segments of abdomen. 2, Dorsum of head. 3, Apical segment of rostrum.

MALE.—Essentially like alate viviparous female, but secondary sensoria smaller and more numerous.

HOSTS.—The summer host is unknown, but it is probably some semi-aquatic plant as nymphs and apterous and alate viviparae were collected with *Aspidaphium cuspidati* Stroyan, which was collected on waterlogged mosses (Stroyan, 1955, p. 306). The winter host is *Crataegus* sp. in Ontario, and alate viviparae, oviparae, and males were collected in September and October. Tissot (1935, p. 52) collected males and alate viviparae from *Crataegus* sp., *Eriobotrya* sp., and *Pyrus* sp. in December.

DISTRIBUTION.—Florida. Ontario.

Systematic Position.—*Hyalomyzus* is referable to the Myzina Börner (1952b, p. 129), which comprises a group of *Myzus*-like genera in which the nymphs (larvae) have spiculose hind tibiae. Within this group *Hyalomyzus* can be most readily distinguished by the absence of pigmented sclerotic patterns on the dorsum of the abdomen in the alatae. The presence of three setae on each of the first tarsal segments suggests affinities with *Myzus cerasi* (F.), but, in the latter species the cornicles are cylindrical, the alatae have a pigmented sclerotic patch on the dorsum of the abdomen and the venter of the pterothorax is strongly and almost evenly spiculose whereas it is smooth or nearly so in *Hyalomyzus*.

Not all of the *Myzus*-like genera that have been defined are as yet known to be present in North America; but among those that are, *Hyalomyzus* may be distinguished, so far as eastern species are concerned, by means of the following key:

1. Nymphs (larvae) with spiculose hind tibia, or, antennae five-segmented in adults 2
1.′ Nymphs (larvae) lacking spicules on hind tibia; antennae six-segmented in adults 5
2. Antenna five-segmented; on mosses 3
2.′ Antenna six-segmented; not on mosses 4
3. Opening of cornicle transverse ..... *Myzodium* Börner
3.′ Opening of cornicle oblique ..... *Aspidaphium* Börner
4. Cornicle cylindrical or, if swollen, the first segment of hind tarsus with two setae ..... *Myzus* Pass.
4.′ Cornicle swollen and first segment of hind tarsus with three setae ..... *Hyalomyzus* n. gen.
5. First segments of hind tarsus with two setae; cornicle swollen.... 6
5.′ First segment of hind tarsus with three setae; cornicles cylindrical 7
6. Setae on dorsum of abdomen shorter than apical diameters of cornicle ..... *Nectarosiphon* Schout.
6.′ Setae on dorsum of abdomen equal to or longer than apical diameters of cornicle ..... *Rhopalomyzus* Mordv.
7. Frontal tubercles in apterae each with a long, fingerlike projection; antennae of apterae shorter than body..... *Phorodon* Pass.
7.′ Frontal tubercles in apterae lacking long fingerlike projections, but, sometimes well developed and strongly converging; antennae in apterae longer than body ..... *Ovatus* v.d.G.

Another species that should probably be placed in *Hyalomyzus* is *Myzus sensoriatus* Mason, which was described from four alate viviparous females that were collected from *Crataegus crusgalli* L. in Washington, D. C. According to Mason (1940, p. 19), *M. sensoriatus* can only be distinguished from *H. eriobotryae* by having ungues that are twice as long as the base of the sixth antennal segment, whereas in *eriobotryae* the ungues are four to five times as long as the bases.

Summary

A new genus of Aphididae has been erected with *Myzus eriobotryae* Tissot as type species. Nymphs (larvae), apterous viviparous, and oviparous forms of *eriobotryae* have been described for the first time.

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THE GENUS *NEOPHYLLOBIUS* IN MEXICO (ACARINA: NEOPHYLLOBIIDAE)

Donald De Leon
Coral Gables, Florida

So far as is known, members of the genus *Neophyllobius* prey on other mites and on scale insects, but unlike most predaceous mites they are rather deliberate in their movements. I have observed them feeding only twice, one time on a tydeid, the other on a *Brevipalpus*.

The genus includes seventeen species found in Australia, North America, and Europe. McGregor [1] in his paper on the North American species records one from Mexico; this paper describes 12 more from Mexico, bringing the number of named species to 29.

The mites described below are broadly oval when viewed from above and reddish brown in color with the gut contents usually appearing as a white longitudinal stripe down the middle of the hysterosoma; they have in the adult stage 15 pairs of bracteate dorsal body setae (six pairs of dorsocentrals, nine pairs of mediolaterals) and two pairs of lateral body setae. The dorsocentral setae are those setae along the mid-line and with the bases of the respective pairs touching or nearly touching each other; the mediolaterals are rather similar setae with their bases much more widely separated; the laterals are those setae situated on or near the sides of the body, one in front of coxa III, the other in front of coxa IV. A rod-like sensillum about 5 microns long is present near the anterior margin of coxal cavity I and a similar sensillum is on the palpifer. Ventrad the mites bear four pairs of rather long (about 35-50 microns) setiform medioventral setae, one pair is situated beneath the capitulum, one pair posteromedial of coxae I, one pair about in line with coxae III, and one pair about in line with coxae IV; five pairs of narrow-linear to lanceolate usually spinose subcoxal setae, two of these pairs are situated near the bases of coxal cavities I, and one pair each near the bases of coxal cavities II-IV; in the female, two pairs of genital setae, one pair situated near the anterior end of the genital opening, the other near its caudal end and three pairs of closely set anal setae (four pairs in the male). Figure 6 typifies the arrangement of the body setae. The palpi of these mites are basically similar to the palpus of *N. lombardinii* described by Summers and Schlinger,[2] except that the palptarsus of all these species bears four setae as shown in figure 10; in addition, some species bear a minute sensillum on the posterior margin of the palptarsus near its base. The species with two exceptions (*N. quadrisetosus* and *N. trisetosus*) bear the following number of leg setae:

Coxae I-IV 1 each.
Femur I 4, II 3 (*N. quadrisetosus* 4), III 2 (*N. trisetosus* 3), IV 2.
Genua I-IV 1 each, a minute sensillum also on I and on II.

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[1] McGregor, E. A. 1950. Mites of the Genus *Neophyllobius*. S. Calif. Acad. Sci. Bul. 49, pt. 2: 55-70.

[2] Summers, F. M., and E. I. Schlinger. 1955. Mites of the Family Caligonellidae (Acarina). Hilgardia 23 (12): 539-561.

Tibia I 9, II 8, III 8, IV 7, and each tibia with a subterminal, slightly tapering nail-like sensillum (tibia I of the male bears two of these sensilla).

Tarsi I-II 2 each, ventral and unpaired; 1 pair each, dorsal subterminal; 3 pairs each, terminal. Tarsi III and IV similar to I and II, but each with only 2 pairs of terminal setae. All tarsi with a pretarsus bearing a pair of large claws and an empodium with two rows of tenent hairs. In addition, the female bears a short (4-5 microns) subbasal rod-shaped sensillum on I and on II, the male bears a long (16-23 microns) curved, slightly tapering subbasal sensillum (Figure 12) on each of the four tarsi.

Key to Species (Females)

1. Dorsocentrals 2 to 5 not reaching to seta next behind ..... *mexicanus*
1.′ At least one of the dorsocentrals 2 to 5, but for most species all of these, reaching to or beyond the seta next behind 2

2. Femur II with four setae ..... *quadrisetosus*
2.′ Femur II with three setae 3

3. Femur III with three setae ..... *trisetosus*
3.′ Femur III with two setae 4

4. Seta of genu IV longer than or about as long as tibia IV 5
4.′ Seta of genu IV distinctly shorter than tibia IV 8

5. Setae of genua III-IV reaching beyond ends of respective legs ..... *farrieri*
5.′ Setae of genua III-IV not reaching beyond ends of respective legs 6

6. Seta of genu III distinctly shorter than tibia III ..... *inequalis*
6.′ Seta of genu III longer than or about as long as tibia III 7

7. Seta of genu II shorter than tibia II, seta of genu III about as long as tibia III ..... *equalis*
7.′ Setae of genua II and III distinctly longer than respective tibia ..... *consobrinus*

8. Striae of dorsum consisting chiefly of broken striae; proximal posterior margins of all femora strongly serrulate ..... *lobatus*
8.′ Striae of dorsum consisting chiefly of unbroken striae; proximal posterior margins of femora not strongly serrulate 9

9. Dorsocentral 3 more than half as long as width of body; seta of genu III about two-thirds as long as tibia III ..... *horridus*
9.′ Dorsocentral 3 less than half as long as width of body; seta of genu III about one-half (or less) as long as tibia III 10

10. Seta of genu II distinctly longer than genu II 11
10.′ Seta of genu II about as long as or shorter than genu II 12

11. Seta of genu II nearly as long as seta of genu III and about half as long as seta of genu IV; genual setae weakly spinose ..... *marginatus*
11.′ Seta of genu II about half as long as seta of genu III and about one-third as long as seta of genu IV; genual setae I-III strongly spinose ..... *longulus*

12. Genual setae coarse, setiform, distinctly spinose ..... *curtipilus*
12.′ Genual setae linear (seta of genu II is slightly obovate), very faintly spinose ..... *spatulus*

In the following descriptions all measurements are in microns and body lengths exclude the capitulum; the lengths of body setae are given from front to back.

Neophyllobius quadrisetosus, n. sp.

(Figure 1)

The presence of four setae on femur II and two setae on femur III distinguishes *N. quadrisetosus* from all other species.

FEMALE: Length of body setae: Dorsocentral 1 47, 6 34 (2 to 5 are obscured by gut contents); mediolaterals 64, 48, 35, ? (broken off?), 56, 45, 47, 40, 27; laterals 36, 16. Legs: Femora I-IV 186, 138, 158, 193 long respectively, feumur II with four setae; genual setae I-IV 226, 50, 43, 252 long respectively; tibiae I-IV 190, 141, 192, 226 long respectively. Length 340, width 245.

MALE: Not Known.

Holotype: Female, Guaymas, Son., intercepted at Nogales, November 7, 1956, (Noel) in soil from cactus; U. S. National Museum No. 2465.

Neophyllobius trisetosus, n. sp.

(Figure 2)

N. trisetosus bears three setae on femur III as does *N. lombardinii* Summers & Schlinger, but differs from their drawings and description of that species in having among other characters the mediolaterals of about the same lengths as the dorsocentrals.

FEMALE: Palpus slender, femur with two spinose setae, tarsus with four setae. Body with dorsal and ventral striae unbroken; setae of the following lengths: Dorsocentrals 73, 74, 83, 73, 65, 32-45; mediolaterals 64, 59, 51, 58, 73, 49, 49, 45, 31-42; laterals 32, 19; subcoxals 31, 45, 37, 38, 27. Legs: Femora I-IV 177, 141, 142, and 159 long respectively; genual setae I-IV 62, 54, 59, and 101 long respectively; tibia I-IV 189, 166, 196, and 211 long respectively. Length 326, width 313.

MALE: Resembles female, but dorsal body setae proportionally somewhat smaller and the dorsocentrals on more pronounced raised bases, DC 6 is especially reduced in size; dorsals strongly bracteate. Length 235, width 208.

NYMPH: Resembles adult, but no lateral in front of coxa IV and no seta on coxa IV; femora I-IV with 3, 2, 1, and 1 setae respectively; tibia I-IV with 6, 5, 5, and 3 setae respectively and each with a subterminal sensillum; tarsi I-IV each with one mid-ventral seta, two dorsal subterminal setae, and tarsi I and II each with three pairs of terminal setae, tarsus III with two pairs and tarsus IV with one pair of terminal setae. The legs are proportionally much shorter than those of the adult.

LARVA: Dorsum with five pairs of dorsocentrals and nine pairs of mediolaterals; no lateral setae and coxae without setae; femora I-III with 2, 2, and 1 setae respectively; genu I-III each with one seta and I and II each with a minute sensillum; tibia I-III each with three setae and a nail-

like subterminal sensillum; tarsi I-III each with one mid-ventral and two dorsal subterminal setae, tarsi I and II each with two pairs of terminal setae and a small subbasal sensillum, tarsus III with one pair of terminal setae.

Holotype: Female, Oaxaca, Oax., February 1, 1957, (D. De Leon) from *Quercus* sp. *Paratypes*: One male and one female, same data as for holotype; one female and one nymph, Siete Cabrillas, Oax., other data as for holotype; one male one female, one nymph, Tamazulapan, Oax., February 1, from an unknown tree. Additional specimens were collected near Quiroga, Mich., Sta. Maria del Oro, Nay., and Ixtlan del Rio, Nay.

Neophyllobius farrieri, n. sp.

(Figure 3)

N. farrieri resembles *N. lamimani* McG., but differs from McGregor's drawing and description of it by having four short spinose setae on femur I in place of three long, minutely barbed lanceolate setae and in other characters.

Female: Palpus slender, the two femoral setae weakly spinose; tarsus with the usual four setae and a posteroproximal peg-like sensillum. Body with dorsal and ventral striae unbroken; setae of the following lengths: Dorsocentrals 65, 72, 66, 66, 49, 41; mediolaterals 65, 47, 38-49, 40-56, 56-69, 44-54, 45-53, 37, 27-36; laterals 26, 29; subcoxals 27, 60, 52, 50, 42. Legs: Femora I-IV 165, 134, 136, and 150 long respectively; genual setae I-IV longer than the combined lengths of their respective tibiae and tarsi; tibiae I-IV 184, 157, 183, and 199 long respectively. Length 326, width 299.

Male: Not known.

Nymph and Larva: These stages resemble those of *N. trisetosus* in chaetotaxy, except that femur I of the nymph bears five setae and the genual setae are all longer than the combined lengths of their respective tibiae and tarsi.

Holotype: Female, Puenta de Nejapa, Oax., January 31, 1957, (D. De Leon) from Spanish moss. *Paratypes*: One female, one nymph, and one larva, same data as for holotype. This mite is named for Dr. M. H. Farrier of North Carolina State College.

Neophyllobius inequalis, n. sp.

(Figures 5 and 6)

N. inequalis resembles *N. farrieri*, but can be distinguished from that species by having the seta of genu III distinctly shorter than tibia III and by other characters.

Female: Palpus slender, the two femoral setae distinctly spinose; tarsus with four setae. Body with dorsal striae broken in area medial of mediolaterals 2 to 4 and ventral striae broken in the areas bordering apodemes I and II. Body setae of the following lengths: Dorsocentrals 38-50, 38-55, 43, 54, 51, 27; mediolaterals 52, 45, 42-56, 44, 56, 52-61, 43-57, 31, 20-33; laterals 26, 13; subcoxals 28, 56, 45, 34, 20. Legs: Femora I-IV 168, 126, 136 and 155 long respectively; genual setae I-IV 102, 96, 140, and 200 long respectively; tibiae I-IV 170, 136, 175, 192 long respectively. Length 293, width 216.

MALE: Not known.

NYMPH: Resembles female, but with typical nymphal chaetotaxy.

Holotype: Female, Veracruz, Ver., December 31, 1956, (D. De Leon) from *Erythrina* sp. *Paratypes*: One female and one nymph, same data as for holotype; one female, Veracruz, January 3, 1957, from *Terminalia catappa*.

Neophyllobius equalis, n. sp.

(Figure 4)

N. equalis resembles *N. farrieri* in having long genual setae, but differs from *farrieri* in having the seta of genu II shorter than tibia II.

FEMALE: Palpus with femoral setae spinose, tarsus with four setae. Body with dorsal striae broken in area medial of mediolaterals 2 to 4 and ventral striae broken in areas bordering apodemes I and II. Body setae of the following lengths: Dorsocentrals 61, 74, 67, 78, 67, 39; mediolaterals 61, 63, 62, 59, 74, 55, 62, 42, 34-45; laterals 27, 13; subcoxals 32, 58, 47, 39, 29. Legs: Femora I-IV 174, 137, 133, and 156 long respectively; genual setae I-IV 143, 140, 169-190, and 232 long respectively; tibia I-IV 180, 152, 173-193, and 198 long respectively. Length 308, width 266.

MALE: Not known.

Holotype: Female, Navarrete, Nay., March 29, 1957, (D. De Leon) from *Guazuma* sp. *Paratype*: Female, same data as for holotype, but from an unknown host. A specimen collected near Valles, S.L.P., December 20, 1956, may belong here; it is somewhat larger, but with shorter leg segments, genual setae and body setae.

Neophyllobius consobrinus, n. sp.

(Figure 7)

N. consobrinus appears to be most closely related to *N. equalis*. It is readily distinguished from that species by having the seta of genu II distinctly longer than tibia II.

FEMALE: Palpus with the two femoral setae spinose, tarsus with four setae. Body with dorsal striae broken in only a few places medial of mediolaterals 2 to 4, ventral striae broken in a wide area bordering apodeme I and in a wide area bordering apodeme II. Body setae of the following lengths: Dorsocentrals 52, 48, ? (obscured), 52, 56, 24; mediolaterals 47, 49, 43, 43, 52, 43, 44, 36, 24; laterals 31, 18; subcoxals 29, 55, 49, 43, 29. Legs: Femora I-IV 181, 138, 139, and 162 long respectively; genual setae I-IV 155, 167, 195, and 240 long respectively; tibiae 169, 139, 163, and 187 long respectively. Length 280, width 230.

MALE: Not known.

Holotype: Female, Tuxtla Gutierrez, Chiapas, January 18, 1957, (D. De Leon) from *Jaquinia pungens*.

Neophyllobius lobatus, n. sp.

(Figure 8)

N. lobatus resembles *N. sierrae* McG. in general characters, but differs from McGregor's description and drawing of that species in having the seta

of genu IV shorter than tibia IV, in having the proximal posterior margins of the femora strongly serrulate, and in other characters.

FEMALE: Palpus with the two femoral setae spinose, tarsus with the usual four setae and a rod-shaped sensillum. Body with most all the dorsal striae broken, ventral striae broken in areas bordering apodemes I and II. Body setae of the following lengths: Dorsocentrals 45, 45, 45, 42, 45, 30; mediolaterals 43, 45, 45, 47, 60, 41, 40, 29, 23; laterals 22, 16; subcoxals 26, 43, 33, 32, 18. Legs: Femora I-IV 138 106, 125, and 130 long respectively; genual setae I-IV 54, 42, 45, 121 long respectively; tibiae I-IV 122, 101, 127, and 150 long respectively. Length 322, width 273.

MALE: Not known.

Holotype: Female, San Blas, Nay., April 11, 1957, (D. De Leon) from guasamolleta.

Neophyllobius horridus, n. sp.
(Figures 9 and 10)

N. horridus belongs in the *sierrae-lobatus* group of mites, but is readily distinguished from the other mites in this group by having DC 3 more than half as long as the width of the body.

FEMALE: Palpus with the two femoral setae weakly spinose, tarsus with the usual four setae. Body striae dorsad in area medial of mediolaterals 2 to 4 very fine, close together and unbroken giving the area an almost smooth look, ventral striae in areas bordering apodemes I and II scarcely broken. Body setae of the following lengths: Dorsocentrals 86, 81, 155, 91, 92, 37; mediolaterals 56, 54, 54, 52, 80, 56, 62, 53, 40; laterals 31-38, 24; subcoxals 36, 48, 44, 37, 37. Legs: Femora I-IV 180, 146, 143, 156 long respectively; genual setae I-IV 94, 88, 130, 187 long respectively; tibiae I-IV 185, 164, 193, and 207 long respectively. Length 281, width 244.

MALE: Not known.

Holotype: Female, Route 35, 18 miles southeast of Guadalajara, Jal., March 22, 1957, (D. De Leon) from an unknown host.

Neophyllobius marginatus, n. sp.
(Figures 11 and 12)

N. marginatus resembles *N. horridus*, but DC 3 is somewhat less than half as long as the width of the body and the seta of genu III is much less than half as long as is tibia III.

FEMALE: Palptarsus with four setae and a rod-shaped sensillum. Body with dorsal striae coarse, unbroken; ventral striae unbroken. Body setae of the following lengths: Dorsocentrals 64, 70, 100, 72, 69, 27; mediolaterals 57, 58, 49, 52, 75, 46, 50, 40, 33; laterals 30, 18; subcoxals 25, 50, 35,

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Fig. 1. *quadrisetosus*, legs II-IV
Fig. 2. *trisetosus*, legs II-IV
Fig. 3. *farrieri*, legs II-IV
Fig. 4. *equalis*, legs II-IV
Fig. 5. *inequalis*, legs I-IV
Fig. 6. *inequalis*, dorsum (left half), venter (right half) of body
Fig. 7. *consobrinus*, legs II-IV
Fig. 8. *lobatus*, legs II-IV
Fig. 9. *horridus*, legs II-IV
Fig. 10. *horridus*, palptarsus
Fig. 11. *marginatus*, legs II-IV
Fig. 12. *marginatus*, tarsus II of male
Fig. 13. *longulus*, legs II-IV
Fig. 14. *curtipilus*, legs II-IV
Fig. 15. *spatulus*, legs II-IV

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42, 28. Legs: Femora I-IV 155, 125, 125, and 146 long respectively; genu II 33 long; genual setae I-IV 64, 47, 46-63, and 106 long respectively; tibia I-IV 168, 143, 178, 199 long respectively. Length 314, width 271.

MALE: Resembles female, but dorsal setae, especially DC 3 relatively shorter and DC 6 very short. Length 235, width 206.

NYMPH AND LARVA: Chaetotaxy similar to these stages of *N. trisetosus*.

Holotype: Female, Ixtlan del Rio, Nay., March 24, 1957, (D. De Leon) from a composite heavily infested with *Brevipalpus*. *Paratypes*: Two males, two females, two nymphs, one larva, same data as for holotype; one female, nine miles west of Tepic, Nay., March 25, 1957, from *Quercus* sp.

Neophyllobius longulus, n. sp.

(Figure 13)

N. longulus appears to be closely related to *marginatus* differing from it by having the seta of genu II about half as long as the seta of genu III, by having genual setae I-III strongly spinose, and by other characters.

FEMALE: Palpus with the two femoral setae strongly spinose, tarsus with four setae. Body with dorsal striae unbroken, ventral striae broken in areas bordering apodemes I and II. Body setae of the following lengths: Dorsocentrals 50, 51, 82, 59, 64, 34; mediolaterals 63, 62, 40, 40, 65, 38, 34-42, 37, 35; laterals 27, 20-29; subcoxals 33, 42, 42, 36, 27. Legs: Femora I-IV 155, 127, 131, 152 long respectively; genu II 33 long; genual setae I-IV 76, 51, 90, 141 long respectively; tibiae 190, 161, 196, and 207 long respectively. Length 315, width 248.

MALE: Not. known.

NYMPH: Chaetotaxy similar to this stage of *N. trisetosus*.

Holotype: Female, Matias Romero, Oax., January 30, 1957, (D. De Leon) from *Calophyllum* sp. *Paratypes*: One female, one nymph, same data as for holotype.

Neophyllobius curtipilus, n. sp.

(Figure 14)

N. curtipilis belongs in the *sierrae-lobatus* group of mites, but differs from the other members, except *N. spatulus*, by having the seta of genu II about as long as or shorter than genu II; the genual setae are distinctly spinose.

FEMALE: Palptarsus with four setae. Body with dorsal striae fine and unbroken in area medial of mediolaterals 2 to 4, ventral striae broken in areas bordering apodemes I and II. Body setae of the following lengths: Dorsocentrals 53, 56, 64-85, 64, 61, 31; mediolaterals 60, 57, 42, 41, 63, 38, 41-50, 36-46, 32; laterals 27-36, 19; subcoxals 31, 44, 34, 36, 34. Legs: Femora I-IV 174, 139, 141, 155 long respectively; genu II 33 long; genual setae I-IV 75, 32-46, 84, 140 long respectively, all setiform, distinctly spinose; tibiae I-IV 194, 167, 195, 224 long respectively. Length 308, width 250.

MALE: Resembles female, but DC 6 very short. Length 238, width 213.

NYMPH AND LARVA: Similar to these stages of *N. trisetosus*.

Holotype: Female, Tuxtla Gutierrez, Chiapas, January 10, 1957, (D. De Leon) from *Cordia dentata*. *Paratypes*: One male, same data as for

holotype; one male, one female from *Guazuma tomentosa*, other data as for holotype; one female from an unknown host, Tuxtla Gutierrez, January 12. Additional specimens were taken from *Rhus schideana*, *Lonchocarpus rugosus*, *Quercus* sp., avocado and several other hosts in the same area during January. One of the specimens taken from oak was observed feeding on a *Brevipalpus* sp.

Neophyllobius spatulus, n. sp.

(Figure 15)

N. spatulus resembles *N. curtipilis*, differing from that species chiefly in having the genual setae linear and faintly spinose.

FEMALE: Palptarsus with four setae. Body with dorsal striae unbroken in area medial of mediolaterals 2 to 4, ventral striae broken in areas bordering apodemes I and II. Body setae of the following lengths: Dorsocentrals 47-66, 50-75, 77, 69, 62, 35; mediolaterals 64, 62, 50, 47, 66, 46, 36; laterals 30, 19; subcoxals 38, 51, 38, 38, 18. Legs: Femora I-IV 176, 142, 143, and 154 long respectively; genu II 33 long; genual setae I-IV 53-70, 30, 65-99, and 108 long respectively, faintly spinose-bracteate, coarse, their sides nearly parallel, except II which is widest at about the distal third; tibiae I-IV 190, 145-208, 173-208, and 217 long respectively. Length 308, width 253.

MALE: Not known.

Holotype: Female, Route 15, nine miles west of Tepic, Nay., March 25, 1957, (D. De Leon) from a composite infested with *Brevipalpus* sp. *Paratypes*: Two females, same data as for holotype, but from a different species of composite; one female, km post 666, Route 190 north of Tehuantepec, Oax., January 31, 1957, from a malpighiaceous shrub.

Holotypes except as noted have been retained in the writer's collection; paratypes will be deposited in the University of Florida Collections, Gainesville.

Neophyllobius mexicanus McGregor (1950)

I have not seen this species. It was intercepted at Brownsville, Texas on avocado budwood from "Mexico". Based on McGregor's description it can be distinguished from all the species described above by its short body setae. A specimen which fits the description of this species fairly well was collected by Mr. Frank Mead and the writer on Key Largo, Florida, June, 1956, from *Zanthoxylon*.

Acknowledgments are made to Mr. Miguel Palacios Rincón of the Instituto de Historia Natural de Chiapas for the identification of the host plants I collected while there and to Dr. E. W. Baker, Agricultural Research Administration, U.S.D.A., for the loan of material from the National Museum.

The Genus Neophyllobius in Mexico

New species of *Neophyllobius*. The legs are arranged in the same order for each species—the anteriormost to the left. All legs are drawn to approximately the same scale and are of females, except as noted.

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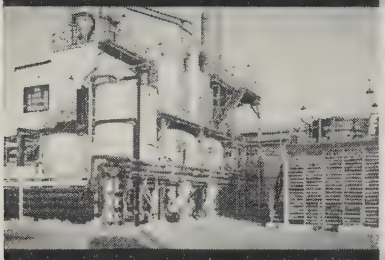

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MINUTES OF THE 41st ANNUAL MEETING OF THE FLORIDA ENTOMOLOGICAL SOCIETY

The 41st Annual Meeting of the Florida Entomological Society was held in the Tampa Terrace Hotel, Tampa, Florida, on August 28th and 29th, 1958. Registration was from 6:00 to 8:00 P.M. on Wednesday, August 27th, and 8:30 A.M. to 5:00 P.M. August 28th.

On Wednesday evening an Executive Committee meeting was held in the President's suite and a color film shown in the Roman Room of the hotel.

The opening session began at 9:00 A.M., Thursday, August 28th, with President I. H. Gilbert presiding.

Thirty-eight papers, including five invitational papers and one invitational panel were presented to the Society.

On Thursday at 3:15 P.M. a boat tour of the Tampa waterfront on *Miss Florida Second,* was enjoyed by members and their families. From 6:00 to 7:00 P.M. a social hour provided by industry, was held in the Palm Room of the Tampa Terrace Hotel and followed by a banquet with W. G. Bruce serving as Toastmaster and Dr. John S. Allen was guest speaker.

The first business meeting was called to order by President Gilbert at 11:40 A.M., Thursday, August 28th. President Gilbert called for a reading of the minutes of the last meeting. John E. Porter made a motion we dispense with the reading since the minutes have been published in THE FLORIDA ENTOMOLOGIST. The motion was seconded and carried unanimously.

President Gilbert appointed the following committees:

Resolutions	*Auditing*
W. C. Rhoades, Chairman	Frank Robinson, Chairman
A. J. Rogers	E. P. Merkel
M. H. Muma	

The President then called for a report of the Treasurer:

H. A. Denmark reported that the paid up membership of the Society numbers 267 with 4 honorary members. He reported that the financial condition of the Society is excellent—

REPORT OF TREASURER-BUSINESS MANAGER FOR YEAR ENDING AUGUST 21, 1958.

RECEIPTS

Hospitality Hour Funds	$ 363.00
Registration Fees	286.00
Banquet Fee	342.00
Dues	1,058.50
Subscriptions	368.67
Reprints	149.92
Advertising	936.48
Back Numbers	63.00
Etchings	13.98
Plates	15.00
	$3,596.55
Cash on hand 8/31/57	818.09
	$4,414.64

DISBURSEMENTS

Cash—Gratuity—Sec. help during 57 Convention	$ 12.41
Orlando Convention Bureau (Printing)	4.64
San Juan Hotel—Banquet and Beverages	788.30
Streep Music & Cunningham Quartet, 57 Banquet	55.00

Florida National Bank—Ret Klienhans check (reimbursed by Klienhans 1/58)	6.00
Jim Brogden—Exhibit expense	20.42
American News—Overpayment refund	9.00
Parker Office Supply	1.08
'Entomology in Action' postage	13.44
Pepper Printing Company	2,172.10
Postage & Misc. expense	100.71
Florida National Bank service charge	.60
Mrs. H. A. Denmark, Sec. help 56-57, 57-58	20.00
	$3,203.70
Cash on hand 8/21/58	1,210.94
	$4,414.64

Respectfully submitted,
H. A. DENMARK,
Treasurer

Lewis Berner commented on the exchange of publications and gifts by the Society. President Gilbert asked that a list of publications exchanged be published in the FLORIDA ENTOMOLOGIST.

The business meeting was adjourned with the President calling for a short meeting following the afternoon session.

The second business meeting was called to order by President Gilbert at 3:30 P.M., Thursday, August 28th. In the following message to the Society, President Gilbert expressed his thanks and appreciation for having had the honor of being President of the Society:

"Since I will not be present for the final business meeting, I would like to report to the members of the Florida Entomological Society of the great privilege and honor it has been to be your President for this year.

"I would like to express to all members my many thanks for a successful year. This success is and will be due to the members of the committees who have helped me so willingly. To point out the following especially:

"To our Vice President—William P. Hunter, the other members of the Executive Committee, the editors of the FLORIDA ENTOMOLOGIST and members of the following committees:

Public Relations

John E. Porter
Chas. R. Stearns, Jr.
A. N. Tissot (Chairman)

Obtaining 1961 meeting, ESA in Fla.

F. Gray Butcher
D. O. Wolfenbarger
James T. Griffiths
Herman S. Mayeux (Chairman)

Membership committee

M. Lewis Wright
D. O. Wolfenbarger
A. A. Whipp
J. T. Griffiths (Chairman)

Committee on Changing the Executive Committee

F. Gray Butcher
John W. Wilson (Chairman)

Entomology in Action Talks

M. Lewis Wright

Entomology in Action Display

James E. Brogdon

Local Arrangement

Douglas Thullberry
R. R. Reed
Doyle J. Taylor
G. D. Sloan
Joseph Gross
William B. Gresham, Jr. (Chairman)

Nominating Committee

L. C. Kuitert
A. A. Whipp
William W. Warner

Certificates of Honorary Members

William P. Hunter
Milledge Murphey, Jr.

Resolutions Committee

W. C. Rhoades (Chairman)
A. J. Rogers
Martin H. Muma

Program Committee

Wm. A. Simaton
Alfred S. Mills
Howard V. Weems, Jr.
Frank W. Mead (Chairman)

Rep. Judge of Science Fair, Gainesville

Robert E. Waites

Auditing Committee

Frank A. Robinson (Chairman)
E. P. Merkel

The final business meeting was called to order at 4:30 P.M., Friday, August 29th, with Vice President Bill Hunter presiding.

Vice President Hunter called for a report of the Auditing Committee, which was given by Frank Robinson: "The Auditing Committee has examined the records of the Treasurer-Business Manager, and finds them in good order, with all receipts and disbursements clearly recorded and accounted for". J. T. Griffiths moved that we accept the report of the Treasurer and the motion was seconded and carried unanimously.

Vice President Hunter called for a report of the "Entomology in Action" Committee. Frank Mead reported that the exhibit is the same as last year and had been used at the AES Meeting in Memphis and the Beekeepers Meeting this year. Lewis Wright reported that the "Entomology in Action" talks had been given about a dozen times throughout the state this year. He encouraged members to use "Entomology in Action" talks more freely. Frank W. Mead listed the following places where the "Entomology in Action" exhibit has been shown:

1. 40th Annual Meeting Florida Entomological Society, Orlando, by Brogdon, Murphey, Mead.
2. Exchange Club, Gainesville, by Dr. H. V. Weems, Jr.
3. Annual Meeting, Florida Beekeepers Association, Tallahassee, by Frank Robinson.
4. Army Reserve Officers Meeting, Gainesville, by Lt. Col. William Hunter.
5. Annual Meeting Entomological Society of America, Memphis, by H. Mayeux and F. W. Mead.
6. Open House and Science Fair, Florida Southern College, Lakeland, by Biology Prof. H. M. Field.
7. 41st Annual Meeting, Florida Entomological Society, Tampa, Brogdon, M. Murphey and Mead.

The Secretary read a letter from Dr. A. D. Hess, Chairman of the Exhibits Committee of the ESA as follows:

> "We heard much favorable comment on the exhibit which the Florida Entomological Society had at the Entomological Society of America meetings in Memphis last year. This year the meetings will be held in Salt Lake City, December 1-4 and we are hoping that Florida may again have an exhibit. Could you please put me in contact with the individual who might be responsible for planning such an exhibit?"

A motion was made, seconded, and carried unanimously instructing the incoming President to appoint a committee to study the possibility of sending the "Entomology in Action" display to the meeting in Salt Lake City.

Vice President Hunter called for a Membership Committee report.

J. T. Griffiths made the following motion:

"WHEREAS: The Florida Entomological Society membership is available to anyone 'interested in entomology', and

"WHEREAS: Many nematologists, because of overlapping interests, are vitally concerned with some phases of entomology,

"BE IT HEREBY RESOLVED THAT:

"The Florida Entomological Society will encourage the dissemination of nematological information by including papers on nematology at its annual meeting, if such are of interest to entomologists, and to accept papers

for publication in the Florida Entomologist, if space and funds permit, until such time as a Florida Nematological Society is founded to perform these functions for nematologists."

The motion was carried unanimously.

After considerable discussion. J. T. Griffiths made the following motion:

"The membership form recommended by the Membership Committee be accepted for use by the Society.

"It be so modified by the Secretary as to make it usable for a permanent card file."

The motion was carried unanimously.

J. T. Griffiths moved that the incoming President appoint a committee to study sustaining membership fee, which will be voted on at the next annual meeting. The motion was carried unanimously.

Milledge Murphey commented on honorary members and stated that a certificate will be presented to them.

Vice President Hunter called for a report of the Resolutions Committee. Martin Muma read the following resolutions:

1. Whereas the invitational speakers contributed significantly to the success of the program of the 41st annual meeting of the Florida Entomological Society, be it resolved that the Secretary be instructed to express the appreciation of the society to each invitational speaker by appropriate letter.
2. Whereas the name "Cotton States Branch" is not a descriptive branch name as applied to Florida as well as other states in this branch,

   Be it Resolved that the F. E. S. go on record as favoring a change in name from the "Cotton States Branch" to another, more descriptive and representative name for the branch.

   Finally, Be It Resolved that a copy of this resolution be sent to the Cotton States Branch of the E. S. A. for consideration at the business meeting of their forthcoming annual meeting.
3. Be it resolved that the Florida Entomological Society extend a cordial invitation to the Entomological Society of America to hold its 1961 annual meeting in Florida.
4. Be it further resolved:
   A. That the Society express its special appreciation to the Local arrangement and Program Committees for arranging and conducting this excellent meeting.
   B. That the Society does hereby express its sincere thanks to the members of industry for a most enjoyable social hour.
   C. That the Society does hereby express its appreciation to the State Plant Board for providing the special trailer exhibit.
   D. That a note of thanks be written by the Secretary to the management of the Tampa Terrace Hotel and to the Greater Tampa Chamber of Commerce, Convention Bureau expressing our appreciation for a most enjoyable stay in Tampa."

The report of the Resolutions Committee was adopted unanimously.

Vice President Hunter called for a report of the Public Relations Committee. A. N. Tissot read the following report and moved the amendment be adopted. The motion was carried unanimously:

Report of Committee for Constitutional Amendment to provide a permanent Public Relations Committee of the Florida Entomological Society:

The committee recommends that another section be added to Article II of the By-Laws, to be known as Section 6 and that the present Sections 6 and 7 be renumbered as Sections 7 and 8 respectively. It is further recommended that the proposed Section 6 read as follows:

Section 6.—There shall be a permanent Public Relations Committee of three members. It shall be the duty of this committee to handle such matters as publicity, education, and general public relations in fulfillment of the first objective given in the Constitution, which is "To promote the study of entomology." The committee shall also be concerned with the disbursement of Society funds and the chairman (or repre-

sentative) of the committee shall serve in an ex-officio capacity with the Executive Committee for the allocation of funds among the various society activities.

Upon the adoption of this amendment the incoming President shall name the full initial committee, one member of which will serve for one year, one for two years and one for three years. Each succeeding President shall appoint one member of the committee for a three year term. The chairman of the committee shall be designated each year by the President under whom he will serve."

Vice President Hunter called for a report of the committee for studying changes in the Executive Committee of the Society. F. Gray Butcher read the following recommendation:

"This committee recommends that Article IV of the Constitution of the Florida Entomological Society be amended to read as follows:

Section 1. The officers of the Florida Entomological Society shall consist of a President, a Vice-President, a Secretary each of whom shall be elected annually; and a Treasurer, who shall be elected for a term of three years.

Section 2. The Executive Committee is the legal representative of the Society and as such shall be in charge of the affairs, funds, and property of the Society and shall conduct the business of the Society, subject to decisions on policy by the membership.

This Executive Committee shall consist of the following Society members: President, Vice-President, the immediate Past President, the Secretary, the Treasurer, three members at large and one representative elected by each Branch.

Upon the adoption of this amendment the Executive Committee Members at Large shall be elected in the following manner: One to serve one year, one to serve two years and one to serve three years. At each annual meeting thereafter one Executive Committee Member at Large shall be elected for a term of three years. The representative of the Branch or Branches shall be elected annually by the members of the Branch.

Section 3. Six (6) members of the Executive Committee shall constitute a quorum for the transaction of its business."

After considerable discussion, the motion was defeated.

Vice President Hunter commended our Editor and Associate Editor on the good job they are doing with THE FLORIDA ENTOMOLOGIST. The Membership gave a standing vote of thanks for the outstanding job the editors are doing.

Vice President Hunter thanked the Local Arrangements Committee.

A motion was made that the Hospitality Funds residue be earmarked as "Hospitality Funds" in the Treasurer's report. J. T. Griffiths moved we adopt the motion and it was carried unanimously.

Vice President Hunter called for a report of the Committee for securing the 1961 meeting of the ESA for Florida. After considerable discussion by members of the committee and others, J. T. Griffiths moved the President appoint a committee to secure the 1961 meeting for Florida and instruct the committee to make recommendations to the ESA that the McAllister Hotel in Miami be made headquarters of the meeting, and that in the event travel to Miami was considered to be too distant, suggest the Robert Myer Hotel in Jacksonville. The motion was carried unanimously.

Vice President Hunter called for a report of the Nominating Committee. L. C. Kuitert read the report nominating the following slate of officers:

President	Mr. Wm. P. Hunter
Vice President	Dr. Andrew J. Rogers
Business Manager	Dr. Robert E. Waites
Secretary	Dr. L. A. Hetrick
Executive Committee	Mr. John E. Porter
Editor	Dr. Lewis Berner
Associate Editor	Mr. Norman C. Hayslip

F. Gray Butcher asked for a unanimous ballot. The slate of officers was elected by a unanimous vote.

Incoming President Hunter expressed his thanks and appreciation for being our President during the coming year.

The meeting was adjourned.

Respectfully submitted,
ROBERT O. KIRKLAND,
Secretary

ABSTRACTS OF PAPERS PRESENTED AT THE 41st ANNUAL MEETING OF THE FLORIDA ENTOMOLOGICAL SOCIETY

The following papers were presented by invitation:

HOFFMAN, C. H. (Entomology Research Division, Agricultural Research Service, U. S. D. A., Beltsville, Maryland.) *Entomology Research Division Programs Relating to Florida Insect Problems.* USDA entomological research benefits Florida. Important contributions include identification of specific insects and development of control methods. A new insecticide of low mammalian toxicity—6-chloropiperonyl chrysanthemumate, known as barthrin—looks promising. Attractants such as angelica seed oil and esters of 6-methyl-3-cyclohexene-1-carboxylic acid aided the Mediterranean fruit fly program. Introduced parasites help control the Rhodesgrass scale and sugarcane borer. Earworm-resistant sweetcorn hybrids have been developed. New insecticides control scales, tobacco insects, and resistant mosquitoes, house flies, and cockroaches. Repellents provide remarkable protection against arthropodborne diseases. A unique product of research is the eradication of screw-worms by release of males sterilized by irradiation. Basic research to help solve future complex insect problems is conducted in the new Insect Physiology and Insect Pathology Laboratories.

MAY, ALAN W. S. (Department of Agriculture and Stock, Queensland, Australia.) *Problems of Economic Entomology in Queensland with Special Reference to Fruit Flies.* Situated with subtropical and tropical latitudes, Queensland cultivates a wide range of agricultural and horticultural crops. Understandably, pests are of major importance. The Queensland fruit fly, *Strumeta tryoni* (Froggatt) (Trypetidae: Diptera), an indigenous species, breeds in all cultivated fruits except cucurbits and pineapples, as well as a wide range of ornamental and wild hosts. Seven additional native species are also of economic importance. Successful control in commercial crops with DDT has followed long term studies of (1) distribution and seasonal abundance, based on trapping station data; (2) field behaviour and its relationship to climatological data and host preferences; and (3) laboratory and field screening of insecticides.

SIMONS, JOHN N. (University of Florida, Everglades Experiment Station, Belle Glade, Florida.) *Pseudo-Curly Top, a Treehopper Transmitted Plant Virus.* After a search of four years a treehopper, *Micrutalis* sp., has been found to be a vector of the pseudo-curly top virus of tomato. This finding was particularly interesting since Membracids had not been previously implicated as vectors.

The treehopper occurs commonly on nightshade, *Solanum gracile* (Link), but has not been found to reproduce on other weeds to date. Under greenhouse conditions it breeds readily on eggplant. The life cycle takes about a month during the summer months; several generations are produced each year.

The virus transmitted by this treehopper causes symptoms in tomato which are very similar to those caused by the sugar beet curly top virus in the western United States. Symptoms induced in nightshade and tobacco, *Nicotiana glutinosa* L., are also identical, but the pseudo-curly top virus does not cause symptoms in many species of plants that are infected by typical curly-top virus. These include pepper, squash, bush bean, zinnia, and beet. The vector virus relationships of the pseudo-curly top virus ap-

pear to be similar in many respects to those of the beet leafhopper, *Circulifer tenellus* (Baker), and typical curly-top virus. The virus can be acquired by a treehopper in as little as 30 minutes feeding time. There is a short latent period—about 24 hours—during which time transmission does not take place. Once the insects are viruliferous, inoculation can take place with a feeding of less than an hour. Virus is retained for several weeks in the treehopper, but the probability of an insect causing an infection decreases as the length of time from the original acquisition feeding period increases.

WALKER, THOMAS J. (Dept. Entomology, Univ. of Fla., Gainesville.) *Significance of Cricket Calls.* Females of three species of tree crickets were subjected to tape recordings of natural and artificial sounds, and it was demonstrated that each responds only to the call of its own species. The differential response is due to differences in pulse rates in the calls. The pulse rate of the call of the male varies with temperature, and the pulse rate to which a female of the same species will respond varies with temperature in the same fashion. Possible applications of these findings are discussed.

SCATTERDAY, JAMES A. (Div. of Veterinary Public Health, Bureau of Preventable Disease, Fla. State Board of Health, Jacksonville, Fla.) *Eastern Equine Encphalomyelidis in Florida.*

The following are abstracts of papers presented by an invitational panel, dealing with aspects of the eradication of the imported fire ant:

BLASINGAME, W. E. (Georgia Department of Entomology, Atlanta.) *Georgia Imported Fire Ant Eradication Program.* A program aimed at the eradication of the Imported Fire Ant was initiated in Georgia in September, 1957. This ant species has been found in 45 Georgia counties on approximately 400,000 acres. An emergency grant of $250,000.00 was recently provided to finance the program during the present fiscal year.

COWPERTHWAITE, W. G. (State Plant Board of Florida, Gainesville.) *Present Status of the Imported Fire Ant Eradication Program in Florida.* The imported fire ant eradication program in the state has been resolved to little more than a sniping engagement by wet weather which characterizes Florida's summer seasons. Because insecticides are not applied when foliage is damp, there have been few occasions when the campaign could be pushed at full tilt. As a result, less than 5,000 acres of infested properties have been treated in the past 90 days. Meanwhile, county committees are huddling with state and federal agencies in perfecting plans to continue the eradication effort once the rainy season ends.

DYKSTRA, WALTER W. (Branch of Wildlife Research, Bureau of Sport Fisheries and Wildlife, United States Department of the Interior, Washington 25, D. C.) *Relation of Wildlife to the Fire Ant Eradication Program.* Findings from current investigations by wildlife biologists indicate high immediate mortality and appreciable delayed mortality among birds and small mammals inhabiting several of the study areas treated with granular heptachlor or dieldrin for fire ant control. Adequate data is not yet available to determine: (1) all of the factors which may contribute to wildlife losses; (2) the duration and degree of delayed mortality; (3) the side effects on reproduction and food chain organisms; and (4) the extent and significance of mortality on treated areas in relation to the total wildlife population. Several modifications in the technique of application and pesticide formulation are being studied as possible means for reducing hazards to wildlife.

FRYE, O. E., JR. (Florida Game and Fresh Water Fish Commission, Tallahassee.) *Relation of Wildlife to the Fire Ant Eradication Program in Florida.* Wildlife authorities are concerned about the use of the insecticides, dieldrin and heptachlor, in introduced fire ant control program. Studies conducted in Texas, Alabama, and Louisiana have shown serious losses of wildlife in certain instances. Forms killed include beneficial insects, crustaceans, fish, amphibians, reptiles, birds and mammals. In Hardin County, Texas, bird populations reduced 92 to 97 percent within two weeks

after application. Nesting success of birds in treated area reduced 89 percent. Heptachlor lethal to wildlife on both wet and dry soil. In Wilcox County, Alabama, 14 of 16 coveys of bobwhite quail disappeared from treated area, many found dead. Long term effect of insecticides feared more than immediate losses. Situation aggravated by public acceptance of and dependence upon "miracle" insecticides. Appears impossible for widespread use of such potent poisons to fail to disturb natural balances.

To date apparently little damage has occurred in Florida. Fire ant control authority, State Plant Board, is working closely with conservation authorities to minimize damage from control operations.

LIVINGSTON, B. P. (Div. Plant Industry, State of Alabama.) *Fire Ant Program—State of Alabama.* Federal and State funds became available October 1, 1957, for a fire ant eradication program. The State Board of Agriculture adopted a program providing for the Federal and State governments and individuals concerned to share a one-third cost basis. State and County Fire Ant Committees appointed by the Commissioner of Agriculture have been a great help to us.

All farmers who have participated in the cooperative program have been highly pleased and have so testified. They state that they have found no live fire ants on their property following the treatment and have experienced no significant loss of wildlife.

PADGET, LAMAR J. (Plant Pest Control Div., Agr. Res. Ser., U. S. D. A., Gulfport, Miss.) *The Fire Ant Eradication in the Southern States.* The present program is the fourth attempt to organize a cooperative endeavor directed at the suppression of the imported fire ant (*Solenopsis saevissima richteri* Forel). The first attempt was in 1937 when the Alabama Department of Agriculture and Industries, in conjunction with the Public Works Administration, attempted a suppression program in Baldwin County, Alabama. The next attempt at organized control was in 1948 when the Mississippi State Plant Board obtained an appropriation to fight the fire ant in the vicinity of Artesia, Miss. This attempt was short-lived because of lack of equipment for the application of material and insufficient funds to extend the program to the entire affected area. In the early fifties, the State of Louisiana obtained an appropriation to assist the farmers in the eradication of this pest and used considerable quantities of chlordane in the Evangeline parishes. The present effort was undertaken when $2,400,000 was provided to the Department of Agriculture in the Appropriation Act of 1958. This program visualized the beginning of the work in the outer fringes of the infestation in an effort to move the outer boundaries of the ant to a more restricted area. At the time this program was undertaken, infestations were known to be present in some 27,000,000 acres in 9 southern states, and infestations to occur in 237 counties in this area. Since the beginning of the program in November 1957, programs in some degree of magnitude have been conducted in 168 of the 239 counties now known to be infested, and all known infestations treated in 67 of the counties, which includes all known infestations in three of the affected states, Arkansas, North Carolina, and South Carolina. Some one-half million acres have been treated so far. Work is being pursued as rapidly as funds, weather conditions, and other factors will permit.

BARTLETT, F. J., AND C. S. LOFGREN. (Plant Pest Control Div., Agr. Res. Ser., U. S. D. A., Gulfport, Miss.) *Improving Methods for Imported Fire Ant Control.*

The following are abstracts of papers presented at the 41st annual meeting:

BIDLINGMAYER, W. L. (Fla. St. Bd. Health, Entom. Res. Center, Vero Beach, Fla.) *Mosquito Penetration Tests with Louver Screening.* Louvered insect screening is designed to exclude sunlight as well as insects. Louvered screening with 17 and 23 louvers per inch were evaluated by comparing the rate of escape of *Aedes aegypti* and *A. taeniorhynchus* with standard 18 x 14 mesh copper and the 22 x 22 mesh fiber glass screens. The 17 mesh screen was found to be inferior to the 18 x 14 mesh screen. No significant differences were found between the 23 mesh and the 22 x 22 mesh screens.

It was concluded that the 23 mesh louvered screen would be satisfactory but not the 17 mesh screen.

Dixon, R. Earl (Peninsular Pest Control Service, Jacksonville.) *How Legislation Affects the Pest Control Operator.* The need of legislation is based on the sincere belief of the need to protect the buying public. Scientific journals, university sponsored short-courses, associations, and entomologists have contributed more to educating the pest control operator than legislation. Legislation gets more binding each year as additional rules and regulations are added. It requires increases in prices, extra services, extra expenses and without proper enforcement creates hardship.

Du Chanois, F. Robert (U. S. Navy Disease Vector Control Center, Naval Air Station, Jacksonville 12, Fla.) *Applied Entomological Training Program and Facilities* of the U. S. Navy Disease Vector Control Center. Recent developments and refinements in planning, organization and assignment of specific responsibilities for pest prevention and control programs within the Naval Establishment are discussed as background. The standard for Training and safety of Department of Defense uniform Standards for Insect and Rodent Control stimulated intensified training of subprofessional vector and pest control operators and supervisors as an aid to their compulsory certification as such. The need for comprehensive, specialized training of this nature, previously unavailable in the Navy, was met in part, by an advanced course, "Disease Vector and Economic Pest Prevention and Control", available on a navy-wide basis. Course content and methods of presentation, emphasizing trainee participation, are discussed and the importance of training grounded on sound entomological principles under the direction of professional military entomologists is stressed.

Genung, William G. (University of Florida, Everglades Experiment Station, Belle Glade, Florida). *Biological and Ecological Notes on Mydas maculiventris Westwood as a Predator of White Grubs in South Florida.* Maggots of *Mydas maculiventris* Westwood were found feeding on scarabaeid larvae in the soil. Previous reports on mydaidae, mention only rotten wood as the larval environment. Moderately drained sandy soil is the preferred habitat of *M. maculiventris.* The species has not been observed on organic soil, though host insects are plentiful. A two-year life cycle is indicated. Adults emerge in August and September.

Genung, William G. (University of Florida, Everglades Experiment Station, Belle Glade, Florida). *Notes on the Syntomid Moth Lymire edwardsi* (Grote) *and its Control on Ficus.* A syntomid, *Lymire edwardsi* (Grote) was highly injurious to *Ficus* spp. during the summer of 1958. Virtual defoliation occurred in some south Florida areas. A chalcid parasite *Brachymeria robusta* (Cresson) was important in reducing the infestation. *B. ovata* (Say) and a larvaevoid fly were also reared from the pupae. Predatory pentotomidae fed on the larvae. Good chemical control was obtained with both toxaphene and DDT emulsifiable concentrates.

Harris, Emmett D., Jr. (Everglades Experiment Station, Belle Glade, Florida). *Observations on the Occurrence of a Milky Disease among Larvae of the Northern Masked Chafer, Cyclocephala borealis Arrow.* Atypical type A milky disease which is caused by the *Cyclocephala* strain of *Bacillus papilliae* Dutky was observed to give excellent control of the northern masked chafer, *Cyclocephala borealis* Arrow, attacking St. Augustine grass in a pasture on organic soil in the Everglades. In 25 days, the pest population fell from about nine to less than one grub per square foot.

Harris, Emmett D., Jr., and Victor E. Green, Jr. (Everglades Experiment Station, Belle Glade, Florida). *Comparison of Field Corn Varieties for Resistance to Earworm and Stored Grain Insect Injury in the Everglades.* Field corn varieties were compared in 1957 for resistance to damage by the corn earworm, *Heliothis zea* (Boddie), and the rice weevil, *Sitophilus oryza* (L.). Each ear was assigned index numbers to indicate the degree of damage by each insect species and averages of these values were used to compared the varieties. The damage from either insect species

appear to decrease as kernel hardness increased. Rice weevil damage was significantly correlated with corn earworm damage.

Merkel, E. P. (Southeastern Forest Experiment Station, Forest Service, U.S.D.A., Lake City, Florida). *The Pine Flower, Cone, and Seed-Insect Research Program at the Lake City Research Center.* An intensive research program on insects affecting slash and longleaf pine seed-production was initiated at the U. S. Forest Service, Lake City Research Center in 1957. This research, in an almost unexplored field of forest entomology in the South, is particularly timely because of increasing demands for large quantities of high-quality pine seed. Progress in the identification of the insects causing damage to flowers, cones, and seeds is described. Two phycitid moths of the genus *Dioryctria* have been the most destructive insects found to date. Life history studies of these species have revealed many complex insect-host relationships. Benzene hexachloride has been found to be the most effective insecticide in preliminary laboratory-screening and small-scale field tests.

Porter, John E. (U.S.P.H.S., Quarantine Station, Miami Beach, Fla.) *A Preliminary Report on the Presence of Hackberry Psyllids in Florida* (*Homoptera*: *Psyllidae*). Of the 8 known spp. of *Pachypsylla* only *venusta* Osten Sacken, *celtidis-gemma* Riley, *celtidis-mamma* Fletcher, *celtidis-inten-eris* Mally, and *celtidis-vesicula* Riley are reported as occurring in Florida on *Celtis mississippiensis* Bosc. A brief resume is given of the biology of the spp. and a method is reported for recognizing the 5 different nymphal instars and for identifying the 5th instar nymphs of each spp.

Provost, Maurice W. (Fla. St. Bd. of Health, Entom. Res. Center, Vero Beach, Fla.) *The Influence of Moonlight on Light-Trap Catches of Mosquitoes.* The New Jersey light trap catches, on an average, six times more mosquitoes at new moon than at full moon although this differential is usually concealed by the many other factors affecting the catches. This is demonstrated for seven genera: *Anopheles, Culex, Mansonia, Uranotaenia, Deinocerites, Aedes* and *Psorophora.* The ratio is close to that shown by others for Noctuid moths, and it is apparently caused by differences in contrast between light in trap and background illumination rather than difference in actual flight activity in the insects.

Provost, Maurice W., and Nina Branch. (Fla. St. Bd. of Health, Entom. Res. Center, Vero Beach, Fla.) *Food of Tendipedid Larvae in Polk County Lakes.* In a preliminary study, the numbers of *Glyptotendipes paripes* were related to plankton density and the latter to nutrients introduced into the Polk County lakes. *G. paripes* and *Tendipes decorus,* through filter-feeding mechanism, fed non-selectively on plankton except for small blue-green algal cells and diatoms which may pass through the larval nets and except for large zooplankters which may swim away from tubes. These tendipetids favor sand bottoms. Hypothesis for tendipetid pest numbers: nutrient introduction raises plankton levels, thus increasing tendipetid production, which process is abetted by disturbing bottom and exposing more sand substrate.

Rohwer, G. G. (U. S. Department of Agriculture, Agricultural Research Service, Plant Pest Control Division, Winter Haven, Florida.) *Work Needed in Florida to Protect This State from Important Tropical and Subtropical Fruit Flies.* The second Florida invasion by Mediterranean fruit flies apparently has been eradicated. New invasions of important tropical and subtropical fruit flies must be expected despite work done to exclude them. Effective detection work should be continued with provision for immediate financing for eradicating new infestations. Research in Florida is needed now to be prepared for eradication with as little loss as possible.

True, Henry H. (Rohm and Haas Co., Ft. Lauderdale). *The Place of the Commercial Entomologist in Florida Agriculture.* Points out impossibility of raising Florida crops in present volume without insect control. Gives brief resumé of increasing complexity of insecticidal materials and increasing importance of dissemination of correct information to growers. Stresses commercial entomologist's role in assisting official agencies by advising in the selection and proper use of recommended materials.

SUGGESTIONS FOR THE PREPARATION OF PAPERS SUBMITTED FOR PUBLICATION IN THE FLORIDA ENTOMOLOGIST

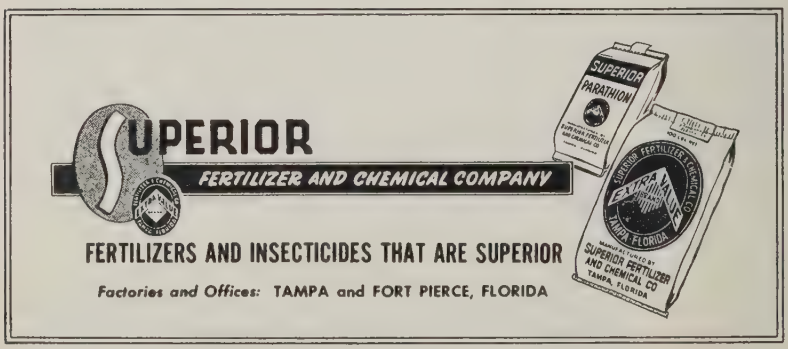
The following suggestions are proposed in order to minimize revisions and editorial corrections:

1. Scientific names of all organisms should be checked for accuracy and completeness. The author of every species mentioned should be given at least once in the text of every manuscript. In all cases scientific names should be given in conformity with standard taxonomic use.
2. Use of the common names of insecticides and the iterim designations of insecticides which have been approved by the Committee on Insecticide Terminology of the Entomological Society of America should be followed.
3. Use of the common names of insects which have been approved by the Committee on Common Names of Insects of the Entomological Society of America is the policy.
4. The title of the paper should be short and concise.
5. Manuscripts should be clearly typewritten on opaque paper, standard size, on one side only. All typed material should be double spaced. Corrections in the typed copy should be kept to a minimum and should be made at the same level as the line in which they are to appear. Do not write in the margin of the manuscript.
6. The original copy of the manuscript is required. Be sure to retain a carbon copy in case of damage or loss of the original.
7. Do not underline any words except names of genera and species and to indicate the use of italics for special emphasis.
8. Number footnotes consecutively with arabic numerals, except in tables where asterisks and daggers should be used.
9. Text footnotes should be typed double spaced in consecutive order on a separate sheet of paper and put at the end of the manuscript.
10. Appropriate center headings should be used. They should be informative and kept to a minimum.
11. Tables are expensive to reproduce. They should always be reduced by the authors to the simplest form. They should not be used if the text or the illustrations give the same information. They should be double spaced on separate sheets of paper, one table to a page, numbered consecutively, and placed in a group at the end of the manuscript.
    a. Give each table a clear, concise heading stating its contents. Headings should be double spaced.
    b. Use a double horizontal line immediately below the title of the table and a single horizontal line below the column headings and at the bottom of the table. Do not use horizontal lines in the interior of the table. Use no vertical lines. Tables should be arranged so that regardless of their length the number of columns is reduced to the minimum.
12. Illustrations should be clear and unquestionably suitable for reproduction. They should contribute materially to the information presented

in the paper. Illustrations may be run either as text figures or as plates; however, if they are run as plates they should be arranged so that they require a full page. Any illustration requiring less than a full page will be considered a figure and should be so designated. Keep in mind that plates will be reduced to page size—4¼ x 7 inches. Each illustration should have typed on the reverse side, on a piece of paper which has been glued to it, the title of the paper and the author as well as the illustration number and its legend. Keep in mind that any marks on photographs or illustrations which require a half tone will show up in the printed illustration.

13. Legends of figures should not be made a part of the copy. They should by typed double spaced on a separate page and identified by the figure number.
14. Literature cited should be arranged alphabetically by author's last name, and typed double spaced on a separate sheet at the end of the text. Only those items should be listed which are actually referred to in the text of the paper. Citations should not be numbered. They should give author's name, year, title, name of the publication, volume, number of issue, pages, and illustrations in the order named. When cited in the text, the item should be referred to by the name of the author and the date of publication.

By adhering to the suggestions given above, manuscripts can be processed in the minimum amount of time and with a minimum amount of correspondence.



A NEW PEST OF MAGNOLIAS

S. H. Kerr [1] and J. E. Brogdon [2]

Hay (1958)[3] reported a damaging infestation of the phycitid *Euzophera ostricolorella* Hulst on yellow poplar in western Kentucky and Tennessee in 1954-57. He stated that this lepidopterous borer apparently has not been considered economically important and that its reported range in eastern United States has been from New York to Georgia. Mr. H. W. Capps of the U. S. Department of Agriculture, Entomology Research Devision, identified as *Euzophera*, probably *ostricolorella*, a borer the writers found severely damaging magnolias (*M. grandiflora*) in the area of Macclenny, Florida, during the winter of 1956-57. Yellow poplar and magnolia are related species, but apparently this is the first recorded injury to magnolias. The trees examined were all young, about three to six feet in height. They were growing in blocks up to a couple of acres in size in commercial nurseries. In some of the nurseries virtually every tree was attacked, and the damage was severe. The larvae apparently feed on the outer tissues and rarely do the burrows disappear beneath the surface, though the wood was deeply etched in these small trees. The winding burrows were confined to the bottom few inches of the trunk and the large roots entering the crown. The beginning point of feeding was sometimes visible just above the ground, but frequently a small amount of soil needed to be pulled away from the base of the trunk to reveal the burrows. Two or three larvae were commonly found in trees only a couple of inches in diameter at the base and complete girdling frequently occurred. Girdled trees were killed, and less severe feeding damage resulted in varying degrees of yellowing and dropping of the leaves. It was evident that the magnolias had the ability to recover eventually from large amounts of larval feeding that stopped short of complete girdling.

On February 1, 1957, when the trees were first examined, only large larvae and pupae were found. By late March many adults had emerged. Hay (1958) observed the main adult flight to be in early spring, and he believed there was one generation a year in the Kentucky-Tennessee area with some evidence of a partial second generation.

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[1] Agricultural Experiment Station, Gainesville, Florida.

[2] Agricultural Extension Service, Gainesville, Florida.

[3] Hay, C. J. 1958. Life history and control of a root collar borer (*Euzophera ostricolorella* Hulst) in yellow poplar. Jour. Econ. Ent. 51: 251-252.

MINUTES OF MEETINGS OF THE SUBTROPICAL BRANCH, FLORIDA ENTOMOLOGICAL SOCIETY

July 11, 1958: 12 members attended the meeting of the Subtropical Branch held in the Community Hall at South Miami. Dr. John E. Porter gave a very interesting speech about the *Aedes aegypti* survey being conducted by the U. S. Public Health Service. The yellow fever mosquito was found recently as far north as to Savannah, Georgia, and in dock areas in Puerto Rico, St. Thomas, and St. Croix.

August 13, 1958: 13 members of the Subtropical Branch went on a field trip to the Entomological Research Center, Florida State Board of Health, at Vero Beach. They were all impressed when Dr. Maurice W. Provost showed them the very well equipped laboratory where fundamental research is being conducted on the biology, physiology, and control of mosquitoes, sandflies, and tabanids. Also he told about the plans for a new building for research on control by insecticides and improvements in the marsh area.

October 8, 1958: 14 members of the Subtropical Branch attended the monthly meeting at the South Miami Community Center. Dr. John E. Porter gave a report on the possibilities for different kinds of research presented by a study of the insects on one or two hammocks in the Everglades National Park, which is planned as a project for our Branch. Mr. William Bidlingmayer of the Entomological Research Center at Vero Beach gave an interesting talk on the biology of *Culicoides furens* Poey.

Alfred S. Mills,
Secretary

THE WORLD OF BUTTERFLIES AND MOTHS, by Alexander B. Klots, 207 pp., illustrated, 24 plates in color. McGraw-Hill Book Company, Inc., New York [1958]. Price $15.00.

Dr. Klots, author of "A Field Guide to the Butterflies," is to be congratulated on the publication of his newest work. "The World of Butterflies and Moths" gives an excellent summary of the biology of the Lepidoptera documented with a profusion of magnificent color plates and black and white photographs and drawings. The colored plates are some of the finest that have been published, and the black and white photographs are the result of skilled photography, most of which was the work of Dr. Klots.

In the introduction the author says, "When it was suggested that I might contribute a book on butterflies and moths to the series of La Nature Vivante I was both flattered and elated; for I realized that this was an unprecedented opportunity to present, not only something of the familiar beauty of these animals, but also much of their unique interest. The abundance of photographs with which these books are illustrated increases this opportunity in a way that has seldom, if ever, been equalled.

"Now that the book is finished, I am all too conscious of its shortcomings, for the subject is so large that many times the present text would be needed to cover it adequately. But the wealth of illustrations compensates for many of the enforced textual brevities and, best of all, does much to introduce the reader to these insects as living members of their environmental communities, not as mere dried cabinet specimens." He has certainly achieved this result in his work.

There are seven chapters discussing the evolution and phylogeny of the Lepidoptera, anatomy, life cycles, ecological relationships, specialized senses, habits, behaviors, and finally relationships with man.

McGraw-Hill Book Company has done a real service to the science of entomology by publishing this splendid volume.—L.B.

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